

# POPULAR Computing WEEKLY

40 Rock RD Only 50p.

June 5-11 1986

Vol 5 No 23

## Sinclair abandons Pandora display

### SPECIAL SUPPLEMENT



### MUSIC ON THE MICRO

The latest and the best micro music products for Spectrum, Amstrad, C64, BBC, MSX and Atari

### PLUS

Tubular Bells competition  
Special offer – Tron Digidrum

- Sinclair abandons his flat screen TV technology for Pandora portable
- Pandora's Spectrum-compatibility scuppered by Amstrad deal
- 'Credit card' software – new configuration
- Full details below and inside

SINCLAIR Research appears to have abandoned the notion of using its flat screen TV in the Pandora portable, and is instead to use a more conventional Liquid Crystal Display (LCD).

Sinclair's original plan in-

volved using an SLR camera style configuration of flat screen TV and magnifying mirror to produce a readable display. Reports of the prototype's performance were conflicting, but it appears that the viewing angle was critical, and this tells against a portable designed to be used in a variety of environments. Sinclair's decision to go for tried and tested LCD technology therefore has a certain amount of logic to it.

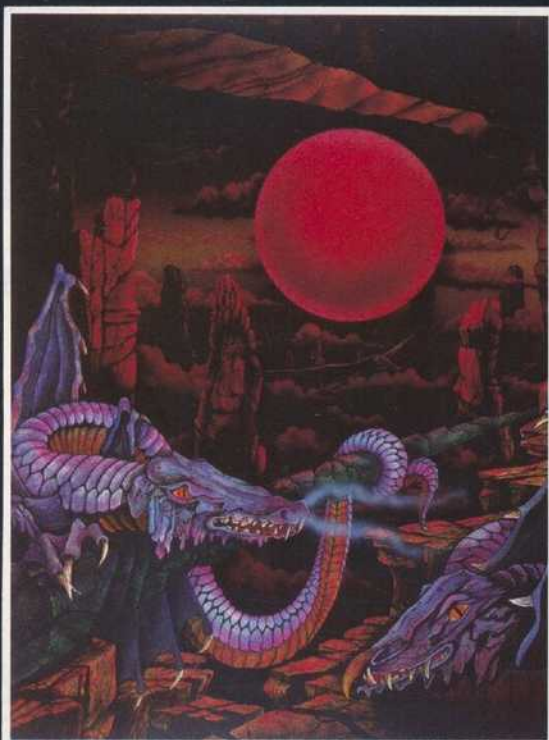
The machine itself is still likely to use credit card software, but rather than using disc or card for data storage it will be configured to store data in the 1M of Ram it will have on

continued on page 4 ►

### IN THIS WEEK'S ISSUE

- Micro Languages series starts this week with C – page 23
- St Bride's meets the Snow Queen – in colour on p15
- Infocom's latest – p13
- Word Wizards results – p11





## Red Moon

Voted  
"BEST ADVENTURE OF THE YEAR"

Commodore Computing International  
Amstrad Computer User  
Computer and Video Games

Voted  
"BEST GRAPHICAL ADVENTURE 1985"

Zzap! 64  
Amtix  
Crash

£6.95  
Cassette

## The Price of Magik

NOW  
AVAILABLE

Rise from Sorcerer's Apprentice  
to Supreme Wizard

Many Powerful Spells

Independent Creatures

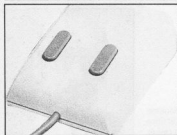
200+ locations, all illustrated  
(not BBC)

Sophisticated word-recognition and  
fast response.

NEW

£9.95  
Cassette



◀ **HARDWARE****11 Euromax joystick**

Euromax recently launched a wide range of 'controllers' - including joysticks and mice, Chris Jenkins looks at the choice available.

**SOFTWARE ▶****13 Organiser Maths Pack**

John Cook sums up the possibilities on Psion's add-on statistics package for the Organiser pocket computer.

**Life and Business Organiser**

Gemini's modestly titled QL program functions as a comprehensive desk diary.

**GAMES ▶****13 Trinity from Infocom**

Infocom's 20th adventure, *Trinity*, was launched at CES this week. Christina Erskine talks to its author, Brian Moriarty, about the game and Infocom's future

future plans.

**15 Colour Feature**

*The Snow Queen* from Mosaic.

**17 Arcade Action****18 Reviews****20 Adventure Corner****23 Computer languages (New series)**

Leon Heller introduces C, a language currently much in the news. Plus buyers' guide and special *Popular* offers.

**25 Amstrad**

Second part of the personal database.

**26 Commodore 64**

Make your programs unbreakable and unlistable with Protector.

**27 QL**

Games-playing made easier.

**28 Spectrum**

Invaluable front-end utility.

**Special Supplement**  
**Music and the micro**

Not only all the latest Midi, composition, sampling, tutorial and digital drum software and hardware for the Spectrum, BBC, Commodore 64, Atari, Amstrad and MSX... but also your chance to win autographed copies of Mike Oldfield's *Tubular Bells* LP, and the C64 game version from NuWave. Plus an exclusive bargain offer on the Tron Digidrum for the C64.



You have ignited a nuclear war

And so, there is no animated display of a mushroom cloud with parts of bodies flying through the air.

We do not reward failure

END

**PROGRAMMING****23 Computer languages (New series)**

Leon Heller introduces C, a language currently much in the news. Plus buyers' guide and special *Popular* offers.

**25 Amstrad**

Second part of the personal database.

**26 Commodore 64**

Make your programs unbreakable and unlistable with Protector.

**27 QL**

Games-playing made easier.

**28 Spectrum**

Invaluable front-end utility.

**29 BBC**

The final part of Marble Mania.

**31 Bytes & Pieces****32 Peek and Poke****REGULARS ▶****4 News Desk****8 Letters, Puzzle****10 Competition Results**

Answers and winners in our Word

Wizards competition. Find out if you're one of the lucky ones who won a C128D with colour monitor, Atari 520STM package, or Mirrorsoft software.

**34 Communications**

Julian Rosen tours Micronet 800, and

drops in on Micronet's multi-user game, *Starnet*.

**44 New Releases****46 Charts, Hackers**

Editor Christina Erskine **News editor** John Lettice **Features editor** John Cook **Production editor** Lynne Constable **Supplements editor** Christopher Jenkins **Supplements designer** Barbara Hajek **Advertisement and Promotions manager** Simon Langston **Advertisement executives** David Osen, Jon Beales **Editorial secretary** Annmarie O'Dwyer **Administration** Geraldine Smyth **Managing editor** Peter Worlock **Publishing director** Jenny Ireland. **Published by** Sunshine Publications Ltd, 12-13 Little Newport Street, London WC2H 7PP. Tel 01-437 4343 Telex 296275 **Typeset by** Publishers Reprographics Services Ltd, 4 Roger Street, London WC1. **Printed by** Greenaway Harrison, Sutton Road, Southend-on-sea, Essex. **Distributed by** S M Distribution, London SW9. Tel 01-274 8611, Telex 261643.

© Sunshine Publications Ltd 1986.

**Popular Computing Weekly. Tel: 01-437 4343.**

**ABC**

**How to submit articles** Articles which are submitted for publication should not be more than 2000 words long. The articles, and any accompanying programs, should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here - so please do not be tempted. We cannot guarantee to return your programs - so please do not send your only copy. **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

# Commodore to shed another 70 jobs

IN yet another round of redundancies Commodore has cut its Corby staff by 54 per cent. The latest jobs lost are in the company's 70-strong sales and servicing team, which has been closed down. This leaves only 60 people working in the echoing caverns of the Corby factory.

The closure of Commodore's servicing facilities means that from the beginning of July dealers will have to make their own arrangements for repairs

and support.

Commodore has appointed Verran Micro Maintenance as its agent for repairs and support, and has recommended that dealers use this company.

Commodore UK's acting general manager, Chris Kaday, said that the loss of the sales and servicing team was part of the knock-on effect of the company's plans to sell the Corby plant, which ceased micro production in January. It has been decided that service,

spares and warehousing should be transferred to third parties pending the sale rather than relocated. Kaday added that the new stripped down operation would be more flexible, and in line with the operations which competing companies run.

No buyer has yet been found for Corby, but although Commodore had intended to lease back some of the plant it now seems likely that the company will move out.



Clive: Planning screen-test?

## Pandora loses its flat screen TV

◀ Continued from page 1

board. Sinclair's original plan involved using Wafer Scale Integration units for storage, but the new company set up to produce these (see separate news item) is aiming the devices further upmarket, so units for the Pandora may not be available for some time.

In any event the project is now very much up in the air. Pandora was initially intended to be Spectrum compatible, but as Amstrad now has the rights to the Spectrum this is probably no longer an option. The machine was to have been produced at Timex's Dundee factory, but the abandonment of the flat screen display means Sinclair is no longer tied to Dundee, which is one of the few places in the world that can produce it.

The Pandora project itself is now Sir Clive's personal baby, so much so that no-one at Sinclair, with the exception of Clive, is able to comment on it.

# Fire fuels exports

A fire at a Hungarian microchip plant has practically wiped out the country's chip production capability, and is likely to have serious knock-on effects throughout Eastern Europe. This could, however, be good news for Western computer manufacturers, as it is likely to expand further the market opened up by Timex Portugal's recent deal with Poland to supply 800,000 Spectrum-based machines and 200,000 disc drives.

Takis Patrikarakos of Micro Interface, which acts as European agent for Timex Portugal



Timex's Polish star

and which negotiated the Polish deal, stressed "I did not start the fire, but the arrival of the Spectrum in Poland could signal the adoption of the machine throughout the Eastern

bloc." He was therefore hopeful that Timex could play a part in any Hungarian deal.

The Eastern Europe market is still largely untapped, and because the United States continues to block the export of more advanced machines like the IBM PC and the QL it is particularly attractive to companies like Timex, which sell 8-bit micros. The 800,000 machines going to Poland represent a significant addition to the estimated five million Spectrums sold so far, and give an indication of the market's potential size.

## Medic boss plans comeback

FORMER Medic Datasystems boss Chris Skoglund may be attempting a comeback, trading under the name Easysoft. Both Hampshire Fraud Squad and the Official Receiver are eager to discuss Medic's affairs with Skoglund, but the latter is currently out of their jurisdiction in the Republic of Ireland. A spokesman for the Official Receiver described him as "very naughty."

Medic, which had trailed a series of QL peripherals including disc drives and Ram expansions through 1985, crashed last December after cashing customers' cheques

and failing to deliver the goods. According to Hampshire Fraud Squad, Skoglund is unable to trade in this country until such time as he cooperates with the Official Receiver, but attempts to contact him have all failed.

Information received by *Popular Computing Weekly* indicates that Skoglund is using the Easysoft name to set up an Irish-based mail order software company.

This will use mail shots to sell software direct in this country. *Popular Computing Weekly* would be interested to hear from anyone receiving such a mail shot.

## WSI revisited

SIR Clive Sinclair's Wafer Scale Integration project is off the ground again, under the auspices of a new company called Anamartic – the Greek for 'fault free'. The new company is being backed by Barclays Bank to the tune of £2 million, and is thought to be attempting to raise finance in the City.

WSI itself was initially intended to be a battery backed-up Ram equivalent of a Winchester disc, providing cheap mass storage for micros. The project now seems to have been revised to provide storage for more specialised mini-computer systems, with first units being shipped towards the end of the year.

## Amstrad Tolkien

MELBOURNE House is to release *Lord of the Rings* and *The Hobbit* for the Amstrad PCW 8256 in July, and is also planning to convert *The Hobbit* to run on the IBM PC and the Apple.

The company also intends to sell a repackaged version of *The Hobbit* without the Tolkien novel for £9.95, although the earlier version will still be sold at the old price of £14.95. The relaunch will be supported by coverage in computer magazines, national and regional newspapers and local radio.



# Games are big at CES show

FIRST reports from the Consumer Electronics Show (CES) held in Chicago earlier this week indicated a dramatic surge in the games market. Japanese newcomer Nintendo was there, alongside the more established games console specialist Sega, and both companies had taken very large stands.

At the time of his Sinclair purchase Alan Sugar expressed interest in the dedicated games machine market, citing the success of Nintendo's console in Japan as justification for this. More recently this has fuelled speculation concerning an Amstrad/Nintendo tie-up, but the latter's presence in Chicago may mean it's prepared to go it alone in the West.

Atari, which cites its own games consoles as a primary reason for its return to profitability under Jack Tramiel, seemed to have taken matters a little far. The company was running a large stand which

combined business and games, but which seemed to fall uneasily between the two.

On the software side the major US players, including Microprose, Sublogic, Batteries included and Activision/Infocom, were there, with the latter duo giving Infocom's adventures their first outing under the Activision banner.

Of the UK companies Mastertronic and Firebird's US arm, Firebird Licensees, were the most bullish.

Both claim promising US operations, and Firebird's morale has gained a timely boost by Elite's arrival at number one in the US Billboard chart.

Early reports from the show also suggested that IBM PC clone prices had dropped even further, with some of them predicting a fall to \$350 by Christmas. This would put Amstrad's PC in the mainstream price-wise, and could help establish the IBM standard in the home/small business area.

## Amstrad hires Timex to build its Plus 2

PRODUCTION of Amstrad's successor to the Sinclair Spectrum, the Plus 2, will shortly be under way at the Timex factories in Dundee previously used by Sinclair Research. The new machine is scheduled for launch in September, will have a built in tape deck, at least 128K Ram, and will cost £140.

Timex's contract with Amstrad is for the manufacture of this machine and for 8256 printers, and although Timex won't comment on the number of units involved the initial computer order isn't likely to be for more than 100-150,000 machines. Timex spokesman Jim Muir expressed satisfaction on the winning of the contract, and said that it would employ 100-200 people for a year.

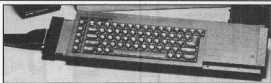
One source close to Timex did however suggest that the

contract price had been pitched deliberately low to secure the business, and that it was unlikely the company would make any significant profit on the deal. Whether Amstrad will countenance a price rise later, however, remains to be seen.

At the time of his purchase of the Sinclair rights Amstrad boss Alan Sugar complained that EEC duties on microchip imports made it difficult for him to produce in the UK.

He said then that he wished to manufacture here, but that Sinclair's UK suppliers would have to make the grade in terms both of price and quality.

It would appear that Timex has done this, although the initial order is small compared to the sort of sales level a new Spectrum machine would be expected to achieve.



Lonely QL seeks financier.

## Backers back away from QL 2

TONY Tebby, who floated plans for a QL mark two at the last ZX Microfair, has parted company with his first backers, but claims to be on the point of signing a contract that will save the project. Tebby had initially asked dealers to "put their money where their mouths are" by investing in the project, but failed to raise the required £250,000.

He claims that, although dealers are clamouring for stocks of the machine, it's a different story when they're asked to put money up, and he

views their lack of action as "highly hypocritical." However, one dealer who had been considering investing money told *Popular Computing Weekly* that he and others had been reluctant to move until Tebby's QDOS compatible operating system was finished.

Tebby himself is still confident that the machine will go into production, and is aiming for a September launch and delivery in October. Its specification was being finalised last week, and further development should follow.

## OU aims for low-price PC

THE Open University wants its own micro produced, and is inviting manufacturers to comment on its required technical specifications. These are ambitious - the machine should run PCDOS of MSDOS, have a minimum 512K Ram, 512K disc storage, 300/300 and 1200/75 modem, serial and centronics ports, mouse, three expansion slots, PC/AT style keyboard, monitor and 100 cps printer.

All this, says the OU, should be available for £500. The machine itself will also have to be able to run *Lotus 1-2-3*, *UCSD Pascal*, *Gem*, *PC Automator*, *Sidekick* and *Wordstar*.

At the price the obvious contender for the contract is Amstrad. Although the PC the company intends to launch at

the end of next week won't include a modem, a twin disc version of the machine with monochrome monitor and 512K Ram would be within striking distance of the OU's requirements.

Other major manufacturers who might be interested include Olivetti, which is interested in establishing MSDOS as an educational standard, and Sanyo, whose cheap PC compatibles are already approved for use in Germany's schools. The low price, however, coupled with the fact that the OU predicts a maximum of only 30,000 sales in the first year of the course, 1988, means that the contract won't be as attractive to manufacturers as the BBC one was.

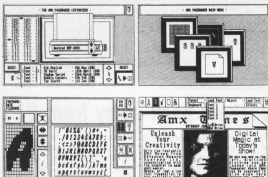
## Firebird's Thrust is Superior

FIREBIRD Silver's *Thrust*, only the second Firebird budget game to top the charts, is to be released as a full-price BBC game by Superior Software. Firebird's version, for Commodore 64 only, costs £1.99, while Superior's game will retail at £7.95 for tape.

Speaking on behalf of Firebird a smug Tom Watson observed that Superior's pricing of the game showed what good value Firebird's 64 version

was. Firebird, he said, hadn't wanted the BBC rights because BBC games tend to be more expensive, and it wasn't felt worthwhile to release it as a BBC budget game.

Firebird itself is currently negotiating to buy the 68000 rights to *Elite*. Should the company be successful this is likely to produce the "Elite-like game" it promised at the *Personal Computer World* show in September 1985.



## Pagemaker for Amstrad launched

AMS's Pagemaker is now available for the Amstrad 464, 664 and 6128 – three months late. The product had been scheduled for launch at the Manchester Amstrad Show in March.

The package combines a typesetter, graphics and word processor for £49.95. Details from Advanced Memory Systems, 166-70 Wilderspool Causeway, Warrington WA4 6QA (0925 413501/2/3).

## T-shirt printer

BANBURY Business Computers is marketing Underware?/

Transfer ribbons – special printer ribbons designed to allow you to transfer lettering and images from the screen to T-shirts and other fabrics. In order to do so you have to convert your screen design to mirror image using AMX SuperArt, Pagemaker or a screen dump routine, then print out onto ordinary listing paper.

The design can then be ironed onto fabric, and is claimed to be permanent and washable. The ribbons cost £12 for black and £19 for five colour.

Details from Banbury Business Computers, 3 Schofields Way, Bloxham, Banbury, oxon (0295 720812).

## CBM teletext adaptor

MICROTEXT has produced a teletext adaptor for the Commodore 64/128. The adaptor turns the Commodore into a teletext receiver, and is claimed to be the only one of its kind suitable for use throughout Europe (except France), Australia and New Zealand. It fits into the machine's user port, and costs £69.95.

Details from Microtext, 7 Birdlip Place, Horndean, Hants PO8 9PW (0705 595694).

## RS232 checker

MAPLIN is now selling Heathkit's PMK-130 Breakfast Box, which can be used to test and modify the interfacing of computers and equipment us-

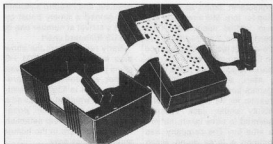
ing the RS232b standard. Battery-driven, it allows lines to be switched around to determine the correct pinout. It costs £78.95 plus VAT.

Details from Maplin Professional Supplies, PO Box 777, Rayleigh, Essex SS6 8LU (0702 552961).

## Pocket Wordstar on the Amstrad

MICROPRO has transferred Pocket Wordstar Deluxe to the Amstrad 6128, PCW 8256 and 8512 micros. Pocket Wordstar Deluxe is an improved version including the Spell Star spelling checker and a mailmerge facility. It costs £69.95.

Details from MicroPro, Haygarth House, 28-31 High Street, Wimbledon, London SW19 5BY (01-879 1122).



# Diary Dates

## JUNE

### 10-12 June Comdex International in Europe

Nice, France  
Details: Business exhibition covering computers, printers, peripherals and software.  
Trade only.  
Organiser: Interface Group, 01-734 7282.

### 13-15 June The Amstrad Computer Show

Novotel, London  
Details: Hardware, software and peripherals for Amstrad micros.  
Price: £3 adults, £2 children, £1 discount for advance sales.  
Organiser: Database Publications, 061-456 8383.

### 24-26 June Computer '86

G-Mex Exhibition Centre, Manchester.  
Details: Business and industry computer show, formerly known as the Northern Computer Show.  
Price: Free entry by business registration.  
Organiser: Reed Exhibitions, 01-643 8040.

## JULY

### 16-18 July PC User Show

Olympia, London  
Details: Hardware and software for IBM machines and their compatibles.  
Organiser: EMAP, 01-608 1161.

### 24-27 July Acorn User Exhibition

Barbican Centre, London  
Details: Hardware, software and peripherals for the Electron, BBC micro and Master machines. Trade only 10am-1pm on 24 July.

Price: £3 adults, £2 children, £1 discount for advance sales.  
Organiser: Editionscheme, 01-349 4667.

## SEPTEMBER

### 3-7 September Personal Computer World Show

Olympia, London  
Details: Software and hardware for home, educational and business computer users. For the first time this year the show is to be organised in three separate halls – business, games and education.  
Price: £2.  
Organiser: Montbuid, 01-487 5831.

### 13-14 September Commodore Horizons Show

UMIST, Manchester  
Details: A wide range of Commodore hardware, software and peripherals.

Price: £3 adults, £2 children, £1 discount for advance booking.  
Organiser: Database Publications, 061-456 8383.

### 26-28 September Electron and BBC Micro User Show Barbican Centre, London

Details: Software, hardware and peripherals for the Electron, BBC micro and Master machines. Produced by Acorn.  
Price: £3 adults, £2 children, £1 discount for advance booking.  
Organiser: Database Publications, 061-456 8383.

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. Popular Computing Weekly cannot accept responsibility for any alterations to show arrangements made by the organiser.



# COLLEEN

the complete computer service

## Training

Full training facilities available

## Business

A range of Business Software for most micros

## Education

Programs designed to your specifications

## Music

See our latest release – **'Colleen Music Compendium'** – £49.95 an incredible package. Also: **'Colleen Music Creator'** – £19.95 disc, £14.95 cass. **'Colleen Playalong and Tutor Package'** – £12.95 disc, £10.95 cass. **'Colleen Guitar Tutor and Drum Machine'** – £12.95 disc, £10.95 cass. **'Colleen Music and Programming Tutor'** – £12.95 disc, £10.95 cass. YAMAHA CX5M – **'Colleen Super Playalong'** (tape only £8.95).

*For the Commodore 64, 128 and Atari.*

## Disabled

Special software editions for the disabled

## Entertainment

Whether your taste be arcade or adventure, we have the answers

## Software Support

If your problem be business, music or basic programming, this service is a must. Available up to 9.00pm, 7 days a week, over the electronic mail services, providing a rapid answer to your problem.



Reg. Trade Mark

For more information, contact **Mr. J. P. MOLLOY**  
**COLLEEN LTD.**

Colleen House, 18 Bishop Street, Penygraig  
Tonypandy, Mid Glamorgan, CF40 1PQ

Telephone: Tonypandy (0443) 435709/434846

Telecom Gold. Mail Box 72 MAG 95347 Telex 265871 MONREF G quoting Reference 72 MAG 95347. PRESTEL Page 24733026



## Printer error

I read with interest your article in this week's (May 15) issue of *Popular Computing Weekly*, concerning our Centronics GLP printer. Firstly, thanks very much for reviewing the GLP, but I did notice a slight error in the copy which your readers may want to know about.

Peter Worlock suggested that he would have preferred a hardware setting for NLQ mode. On the front panel of the GLP are two Sinclair style switches marked "On Line" and "LF"; above "LF" is an LED marked "NLQ". When the GLP is off line the "LF" button may be used to line feed paper for positioning before printing, and when on line the "LF" button can be used - at any time - to toggle NLQ whenever desired, shown by the state of the LED on or off.

I am glad that you reviewed our machine and explained the full potential as well as you did.

D C White  
Saga Systems

**Peter Worlock replies:** Okay - I missed this in the documentation, but why not actually mark the switch to make it clear?

## Disgraceful quality

I think the quality of tapes marketed is disgraceful. Firstly the actual quality of the tape is poor, resulting in sides not loading, due to blanks, poor recording or age of tape. I have experienced all three and have either had my money back or had replacement tapes; the latter not always rectifying the

problem. Another problem is the encoding methods: hyperload, novaload, loading with fast baud rates, all of which do not help with loading and reinforce the problem after the tape is barely a couple of months old.

Thirdly, the games themselves: they suffer from being drab, barely playable, ie, poorness of design and plot; you can't help feeling that it's been a waste of money and that reviewers don't know what they are talking about. Moreover it is usually overpriced.

Of course the software companies claim that their pricing policy is to regain lost revenue via piracy. The home pirates give the pricing policy for their excuse, not the excuse of breaking the law to be 'hard'. When a good piece of software comes into the consumer's hands it will be undoubtedly transformed to another media to overcome the inadequacies if the media it was bought on, eg, with a button device a game could be transferred from low quality tape originally bought to high quality tape. The companies may scream blue murder because of lost sales; they should have put it on quality tape in the first place.

Take note of the record industry - comparing singles to software titles and software titles to albums you can see the difference; especially when artists take longer to produce albums than programmers take to write a single program.

Software companies should produce games on credit card-style cartridges. They cannot be reproduced by the consumer, have a long lifespan and

Star  
Letter

## QL Positioning

The AT command on the QL is very useful for positioning characters on the screen for *Print* statements, but never have I seen it used for *Input* statements; even though it can be used to position the flashing cursor. If the first listing below is substituted for the second one, then the operator doesn't have to wait to find out what the questions will be before answering the current one.

**Listing one**  
5 REMARK \*\* first listing \*\*  
10 CLS:CLS80  
20 PRINT  
30 INPUT "AMOUNT £" :PND  
40 PRINT  
50 INPUT "RATE" :RAT  
60 PRINT

70 INPUT "CURRENCY" :CUR  
80 CLS  
90 REMARK \*\* now use AT \*\*  
100 AT 10,2:PRINT "FOR £" :PND:"YOU GET" :CUR:"PND":RAT

**Listing 2**  
5 REMARK \*\* 2nd listing  
10 CLS:CLS80  
20 AT 6,4:PRINT "AMOUNT £"  
30 AT 8,4:PRINT "RATE"  
40 AT 10,4:PRINT "CURRENCY"  
50 REM \*\* use AT for inputs  
60 AT 6,14:INPUT PND  
70 AT 10,14:INPUT CUR  
80 CLS  
90 AT 10,2:PRINT "FOR £" :PND:"YOU GET" :CUR:"PND":RAT

D J Piggott  
Saudi Arabia

**D J Piggott gets a year's supply of Popular binders.**

can store up to 1M. Maybe we can then expect decent software at prices similar to that of records: single titles priced similar to singles and compilations near to album prices.

Darren Stanley  
Worthing  
W Sussex

**One reason for comparatively higher prices for software that you do not mention is volume of sales; a number one software title sells far fewer units than a number one record.**

**Piracy is a very real threat to software publishers, which detracts considerably from their sales, but transferring a title you have bought to a better quality blank tape does not**

necessarily lose the publisher revenue.

## Spectrum quirks

I have found an unusual and somewhat advantageous quirk on the Spectrum 128.

When using *The Music Box* by Melbourne House, I broke into the program and typed *Spectrum*, which brings it into 48K mode, and then typed *Run*.

I found that you can still have proper three channel sound on a normal Spectrum. It seems that the sound chip can be used in 48K mode, but only in machine code, as the mode does not have the *Play* command.

I also discovered that if you  
continued on page 10 ▶

# Puzzle

## Puzzle No 211

Jamie and Ben were sitting idly watching the Bank Holiday traffic go past. "Want to make a bet?", enquired Ben. "Fifty pence stake each and winner takes all."

"O.K.", replied Jamie. "What's the bet?"  
"You name any number in the range 1 to 999", explained Ben, "then we watch the number plates of the passing cars to see if your number comes up. We'll only count the more usual type of registration number - foreign plates or those with more than three digits in the number part of the plate we'll disregard. Now, as any number in the range 1 to 999 is equally likely to come along, we'll count off the next 500 cars that pass. If your number is amongst them you win the pound. If its not, I win! That's a fair bet!"

"Just a minute!", replied Jamie. "That's not fair at all! To make it a fair bet and our chances equal, my chosen number has to appear on one of the first -".

How many cars did Jamie state must pass if the bet is to be a fair one?

## Solution to Puzzle 206

The smallest box with the required property is one measuring 12 by 21 by 28 inches. This will have a volume of 7056 cubic inches, and a surface area of 2352 square inches.

The program takes the three principal dimensions as variables A, B, and C, and calculates the volume and surface areas in each case. Each of the variables differs from the others, A being taken as the largest of the three, and the smaller orders of sizes are computed first.

## Winner of Puzzle No 211

The winner is John Wheeler of Sutton, Surrey.  
**Rules**

The closing date for puzzle No 211 is July 2.

```
10 A=3
20 FOR B=2 TO A-1
30 FOR C=1 TO B-1
40 VOL=A*B*C:AREA=2*
  (A*B+A*C+B*C)
45 IF VOL/AREA<3 TH
  EN GOTO 60
50 PRINT A;" ";B;" "
  C;" ";VOL,AREA
60 NEXT C
70 NEXT B
80 A=A+1:GOTO 20
```

# Evesham Micros

## PRINTER OFFERS

Check out these offers on top quality dot matrix printers. All the models offered are substantially reduced from the normal high street prices. Prices are fully inclusive of VAT, delivery and lead to suit any computer with centronics parallel printer port, eg. Amstrad, S.B.C., Einstein, Atari ST, Onic, Dragon, Memotech or MSX. For the CBM 64/128 we supply a user port centronics cable. For Spectrum or QL owners an appropriate interface is supplied for an extra £20.00, for Atari models other than the ST an extra £30.00. Delivery is by insured receipted delivery and orders are despatched the next working day after receipt, provided we have stock.

### JUKI 5510

Our best offer yet? This printer has a recommended price of £239.00 plus VAT. It is a very professional 180cps model that boasts the luxury of three paper, N.Q. 30cps as well as all the usual amenities such as friction and tractor feed, EPSON compatibility (including the ribbon), 2K buffer, etc. One aspect that is different about this model is that it can be upgraded to COLOUR application by purchasing the optional colour kit. (£12.00)

**High quality three pass N.L.Q.  
for professional appearance.  
Very fast draft mode at 180cps**

**Subscript and superscript**

**Good underline**

**Many other features including  
optional colour kit.**

**ONLY £219.95**

PRICE INCLUDES CENTRONICS LEAD TO SUIT YOUR MICRO. OR TO SUIT SPECTRUM WITH CENTRONICS "E" INTERFACE £239.95 If you would like a print sample with further information on any model please send S.A.E.

### TATUNG TP100

Bulk purchase allows us to offer this highly popular, high specification printer at an unheard of price. It is from the same manufacturer and of very similar specification to the Memotech Tally MT80 + and Shima CP450. This style of printer required to be the most popular in its class boasts many superb features. It uses square pins which avoids that "dotty" look and gives a nicely formed up "near letter quality" print at 100cps. Friction and tractor feed are standard. It has a full graphics ability. Take a look at these untouched, actual size print samples.

**Standard PICA text (100cps)**

**PICA text emphasised**

**True descenders on jpg etc.**

**ELITE mode gives 96 columns**

**(CONDENSE) mode gives 142 columns**

**ENLARGED mode**

**SUBSCRIPTS AND SUPERSCRIPTS**

**Underlines nicely**

**Italics available in all modes**

*We are convinced that this printer offers the best performance and value in its class and at our unheard of price is a BARGAIN.*

**ONLY £179.95** Price includes Centronics lead to suit your micro. Or to suit Spectrum with Kenpoton "E" Interface £199.95

### MICRO P.MP165

This printer is a very high specification at an unbelievable price. It boasts 165 cps in draft mode and 70 cps in near letter quality mode, which is switch or software selectable. It is friction and tractor feed as standard has a 2K buffer and is EPSON compatible (it even uses an EPSON ribbon). It can print in standard PICA 80 column mode or a variety of others from enlarged 40 column mode to condensed at 132 columns. Italics are available in all modes. Normally this printer would be expected to sell at £300 plus we are offering it at our **after been price inclusive** of printer lead to suit BBC, Amstrad, CBM64, Onic, Dragon, Einstein and Memotech.

**ONLY £249.00** Price includes Centronics lead to suit your micro. Or to suit Spectrum with Kenpoton "E" Interface £269.00

## SPRING SPECIALS

|                            |         |                               |              |
|----------------------------|---------|-------------------------------|--------------|
| ATARI 1040ST mono          | £799.00 | 5.25" 3M DISCS (packs of ten) |              |
| ATARI 1040ST colour        | £999.00 | SS/DD £11.95                  | DS/DD £14.95 |
| (these prices INCLUDE VAT) |         | or in plastic library case    |              |
| OPUS DISCOVERY 1           | £114.95 | SS/DD £12.95                  | DS/DD £15.95 |
| CBM 128 computer           | £229.95 | 5.25" 3M DISCS (packs of ten) |              |
| CBM 128 companion pack     | £279.95 | SS/DD £29.95                  | DS/DD £39.95 |
| CBM music pack             | £149.95 | 3" DISCS (suit Amstrad)       |              |
| CBM MP5803 printer         | £149.95 | BOX OF TEN                    | £39.00       |

### STAR NL10

New high specification printer just released. All the usual features PLUS easy front panel selection of most modes, semi automatic single sheet feed AND plug in interface cartridges. Choose between standard centronics parallel, IBM, or Commodore. Ideal for Commodore owners who want the convenience of a CBM ready printer but may wish to change later, just buy a new interface cartridges for £39.00.

**OUR PRICE: ONLY £269.00**  
(state which cartridge required)

All prices include P&P and VAT. Send cheque, Postal Order or Credit Card No. Credit Card order accepted by phone. Callers welcome. Wide range of goods stocked. Trade enquiries welcome. European orders and prices as advertised. Outside Europe £2.00 for airmail. Mail order to Evesham Shop please.

**EVESHAM MICROS**  
BRIDGE STREET, EVESHAM,  
WORCS., WR11 4RY.  
Tel: 0384 61989

**MICRO CENTRE**  
1756 PERSHORE ROAD,  
COTTERIDGE, BIRMINGHAM.  
Tel: 021-458 4544



MAGIC DISK KIT



**Why pay repair bills  
when you can solve or  
prevent most of your  
1541 and 1570 disk  
drive problems  
for only £19.95**

Every time you use your disk drive the protection on your software bangs your playing head, eventually knocking it out of place. Now with our very easy to use Magic Disk Kit with a clear book of tips you can remedy head alignment faults and give simply maintenance to your machine to give better performance and longer life.

Available from good computer shops or:-

# Bobtek

Bobtek Ltd, Unit 4, Isleworth Business Complex  
St John's Road, Isleworth, Middx. TW7 6NL  
Telephone: 01-847 4457

# Letters

I also discovered that if you go into 128 mode and type Spectrum again, editing will be slightly faster.

Finally, a handy *Poke, Poke 23750*, 16 makes your program totally invisible to see and it also stops program titles being printed when loading. This is useful when you are loading a program after a *Screen\$* which you don't want distributed.

Paul Osborne  
Romford

ly, 12-13 Little Newport Street,  
London WC2H 7PP.

## Unitsoft problem

I recently wrote to you about not receiving certain items ordered from Unitsoft, a company advertising in your magazine.

Could you please let me know if any progress has been made.

L Coburn  
Rotherham

As we reported in last week's News Desk, Unitsoft has ceased trading. Since it was not registered as a limited company, settlement with the creditors lies entirely with Unitsoft's two partners. For information and advice, you can write to John Hendry and Co at 3 Lynedoch Street, Glasgow, Scotland. This is the firm currently dealing with Unitsoft's affairs.

## Atari appreciation

I am delighted to see you have started to cover the Atari ma-



"What are they going to call it? The BBC?"

chines more. I actually own a Commodore 64 at the moment, but after toying around with a friend's Atari 800XL, I know what a superior machine it is, both for programming and for games, etc. It murders the C64, and its sound and graphics capabilities are amazing.

However, I was shocked at Andy Moss's review of *King of the Ring* (April 3-9), where he said, "it's nice to see some quality 8-bit Atari software being produced". To be honest, I have never seen anything oth-

er than high quality Atari software.

Please continue to review Atari software, Atari will make it big this year.

G Wheaton  
Bolton

## Binders wanted

The *Popular Computing Weekly* binders which you are giving away as a prize for the Star Letter are just what I need to control my collection of *Popular Computing Weekly*.

Unfortunately I can't write letters good enough to be a Star Letter, so please can you tell me how I can buy the binders and how much they cost.

Stephen Vysny  
St Andrews

*Popular Computing Weekly* binders are available at £3.50 each, from Helen Perry at 12-13, Little Newport Street, London WC2H 7PP. Please add £1.50 to the cost for postage and packing. If you order ten or more binders at one time, there is a 10% discount.

## Star letters

Every week *Popular Computing Weekly* offers prizes for Star letters. The most intelligent, pertinent, helpful, or simply interesting item in our postbag each week will win the writer a free year's supply of exclusive *Popular Computing Weekly* binders.

Here is your chance to clear up that pile of old *Populars* under the bed and file them neatly, so get writing today.

Send your thoughts to Letters, *Popular Computing Week-*

RELEVANCE IS THE TOUCHSTONE  
OF ADVERTISING  
**EFFECTIVENESS**

THE ESSENTIAL  
ELEMENTS:

INGENIOUS  
JUSTIFICATION OF  
CONCEPT TO  
CLIENT

STARTLING, OFFBEAT  
IMAGE BASED ON  
POLAROID SUPPLIED  
BY CLIENT

CHALLENGE TO  
CONSUMER'S  
CRAVING FOR  
MEANINGFUL  
INTERACTION

INVITATION TO  
SELF-ACTUALISATION  
THROUGH PRODUCT  
CONSUMPTION

**Strut, Whisk,  
Paw, Snout**  
*Innocent Practitioner of Advertising*

*Vicki*  
Our creative team have really cracked it this time! We altered the robot price and went back over 85% of the advertisement game enthusiasts preferred to the dog, with 18% immediately selecting results.  
The story is hard, obliquely conveying an overt threat! We altered the robot price and went back over 85% of the advertisement game enthusiasts preferred to the dog, with 18% immediately selecting results.  
... AND DON'T FORGET  
**THE PACKSHOT!!**

This dog would like you to buy  
**THE SNOW QUEEN**

Why? Because whether you're a Golden Retriever or a dogged adventure game freak, *The Snow Queen* is an unusually intriguing illustrated text adventure. Based on Hans Andersen's sinister fable, *The Snow Queen* challenges you to free a young boy from the forces of evil. But there's a catch: you're not directly in control of events. To succeed, you'll have to guide and advise Gerda — a headstrong young girl who's not easy to direct. The Snow Queen has been programmed by St Bride's, who have a growing reputation for clever adventures of surprising ingenuity. Mosaic's dog, The Offhog, who has His Master's voice in a loving it. And down at the Tailwaggers' Club they all agree a cold picture gaming what *Baroque Woodhouse*.

**THE SNOW QUEEN**  
HANS-CHRISTIAN ANDERSEN  
Adventure game for  
ST BRIDE'S  
THE COMPUTER GAME

**WME**  
FRODIC  
PUBLISHING

**THE SNOW QUEEN**  
An unusually intriguing illustrated text adventure  
Program by St Bride's

Available for Spectrum and Commodore • Release date: May 1986 • Price: £9.95 (cassette pack)

Distributed by WME Distributors, 21 John's Lane, East Street, Secombe, Essex (SS15 5JF). Available nationwide from stores of choice and distribution, and may be the subject of a major advertisement.



## Market choice

In the spirit of 'free competition and market choice', Euromax Electronics has released a bundle of excellent 'controllers' for the Commodore/Amstrad/Spectrum micros, some of which are familiar products repackaged, and some of which are completely new.

Euromax's joysticks and mice all have one thing in common; they are certainly not of the "throwaway" variety, and are all constructed to be durable and reliable.

To look at the mouse products first, Euromax's most familiar offering is the Cheese mouse, familiar to *Popular* readers as the Wigmore House Commodore 64 mouse. This device is a very sleek, durable and reliable mouse, with two large click switches and a non-slip, rubber coated roller ball.

The art package provided, *Cheese*, is an icon-driven program with a full selection of line, box, circle, pattern and copy facilities, and is remarkably good. Euromax is selling the cassette version of this system at £64.95 for the Commodore 64 and plans versions for the Amstrad, MSX and Spectrum later in the year. Pricey, but worth it.

A cheaper alternative is the Mighty Mouse, at £59.95. This is a slightly less streamlined device, and to my mind less comfortable to use. The switches are

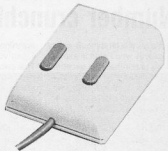
smaller, though they have the same clean, positive action as the Cheese mouse.

The Mighty Mouse works with the C64, Atari and Spectrum, and with the Amstrad using the interface box supplied. This consists of a joystick-type port with a follow-on lead, a power socket with lead, and a switch which converts the mouse inputs to joystick mode. The Mighty Mouse is a fair alternative to the Cheese mouse, but I for one would be willing to pay the extra for the superior product.

Also on the way from Euromax is a series of high-quality joysticks. It continues to amaze me that cheap, fragile sticks are selling in large quantities, when something like the Euromax Micro Ace, at around £15.95, is much more accurate and should last ten times as long. This is a micro-switch joystick with a wedge-shaped body and single centre-mounted thumb-operated fire button. I can attest to its accuracy and reliability, since I used it to finally complete *Uridium*!

Also available is the Pro Ace, at around £11.95 – the same body, but with leaf switches. Rather stiff in use and not as stirring an experience as the Micro Ace.

Next up is the Wiz Card, another of those credit-card-type controllers with a four-way pad operated by the thumb, and a fire



button operated by the other thumb. Pretty useless, as you can imagine, to anyone without thumbs. The Wiz Card, like its lookalikes the JoyCard and so on, is cheap, at £8.95, and probably indestructible, but would take hours of practise to master.

Also in the pipeline is a series of micro-switch joysticks, some with autofire, and a tracker ball. The Elite, Professional, Supreme and Turbo models will be launched between now and September, and cover the £15-£23 price range, while the Joyball will be around £34.95.

Chris Jenkins

**Program** Mouse/Cheese, *Mighty Mouse*, joysticks *Micro* Commodore 64, Amstrad, Atari etc **Supplier** Euromax, Pinfold Lane, Bridlington, North Humberside YO16 5XR (0262 601006).

## Competition Results

# Word Wizards

The moment you've all been waiting for – the winners of the hugely successful Word Wizards competition. We were overwhelmed by the response as more than 2,000 of you entered.

We asked you to find 18 computer-related words, and to re-organise their initials into an 18-letter phrase. The

First prize: C128D with colour monitor

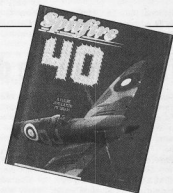


Second prize: Atari 520STM package

phrase, as nearly all of you discovered, was Machine Code Monitor, and the following are the winners:

First prize of a Commodore 128D with colour monitor goes to C R Oswin, of Christchurch. The two runners-up prizes of Atari 520 STMs with disc drives go to Philip Moore, of Rugeley, Staffs; and M S Hurst, of Eltham, London SE9.

Copies of Mirrorsoft's excellent *Spittire*



40 are on their way to Philip Northam, of Dundee; David Collins, of London SE9; Michael Yates, of Peterborough; Paul Burton, of York; Nicholas Lumsden, of London E9; S Wright, of Clacton; Gary Burns, of Gateshead; David Murray, of St Albans; R Shearing, of South Ascot; M Richards, of Whitstable; Dennis Carroll, of Renfrewshire; T Cosens, of Reigate; Alistair Smith, of Edinburgh; Chi-Yeung Choy, of South Ruislip; Mrs F Davis, of Sheffield; G MacKenzie, of Dufftown; David Crew, of Ashford; and Sue Davies, at BFPO 21.

The following BBC owners will receive copies of *Strike Force Harrier*: G Osley, of Hereford; Alan Diamond, of Wembley; Geoffrey Hirst, of Halifax; Justin Lloyd, of Mid Glamorgan; and T Gibson of Derby.

## Number crunching

It's a little bit difficult to say exactly who Psion is expecting to purchase its excellent (but hardly inexpensive) *Organiser II*. Some of its features suggest a primarily executive market – but the *Maths Pack* contains functions which the average exec would have slight difficulty getting their head round.

The *Organiser* does contain various common 'scientific'

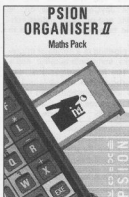
machine, but Bessel functions, Eigen values, Error functions? This pack is certainly aimed at mathematicians, scientists and students who want to do some serious number crunching.

As with the *Finance Pack*, the *Maths Pack* is a read-only cartridge (which slots neatly into one of the datapak drives) that contains a series of procedures written in OPL (*Organiser Programming Language*) called up from the main menu. The five main functions are *Solve* (for solving various types of equation), *Integrate* (for numerical integration) *Statistics* (offering *Error Function* and correlation), *Curve Fitting*, and *Function*, which will perform seven extra maths functions which are not catered for straight from OPL.

As I took it though some admittedly fairly limited exercises, all the options worked well and I was pleased with the overall performance.

There are calculators around that will do these sorts of things for you, but they are expensive and, I suspect, not as easy to use as the menu-driven *Organiser*.

Certainly for numbers people with *Organisers* – and if you



functions, (Sin, Tan, etc) which can be accessed from the Calc function on the stand-alone

## Them were the days . . .

I came over all nostalgic as soon as I saw the inlays, produced on low-budget paper with the aid of the programs themselves. The manuals, chugged out using *Tasword*, reinforced this, and when *Designer* wouldn't load at first, a tear sprang to my eye. Amateurish production and poorly duplicated tapes? Ah, there were the days . . .

Unfortunately, just as production methods have moved on, so have programming standards. The two programs *Designer* and *Character Designer* are sold together, and are basically user defined graphics-based print utilities. Both are Basic listings with a smattering of machine code – *Designer* helpfully has a memory map in the manual, and volunteers the information that the machine code element takes up 250 bytes. This slightly lop-sided approach becomes evident in

areas like character reversal – the manual tells you that you have to wait a short period for this, but doesn't tell you it's being done by a Basic *Peek* and *Poke* loop, which is naturally slowed drastically by the Basic element.

*Character Designer* is relatively simple to explain – it's basically an enhanced version of the UDG designer programs you can pick up from magazine listings, and is intended to plug into *Designer*. The latter is a menu-driven system – again mainly Basic – which can be used to produce and print line drawing and text graphic designs. When it does load it does its job effectively, but isn't really advanced enough to stand out from the crowd.

I don't really see how *Gap* is going to find a market for these at a combined price of £12.45 (although they are available separately).

want a programmable calculator and damn the expense, possibly worth buying the main unit just to run it.

John Cook

**Program Maths Pack Micro**  
Psion *Organiser II* Price  
£29.95 Supplier Psion Ltd,  
Psion House, 18 Harcourt  
Street, London W1.

## Dear diary

There is still a healthy support for the QL among consumers, and it's heartening to see more and more support from the software houses, who may still make a healthy profit by producing the right kind of program for an eager public.

If you're a busy professional who keeps a QL powered up on the desk during office hours, you might find Gemini's new package, *The Life and Business Organiser*, of some use. Essentially a database of important dates, it is easy to set up: just input the date and then any information that you would normally keep in a diary. Obvious applications are birthdays and other anniversaries and appointments, both business and domestic – but categories may be re-defined as required.

Subsequently, the program can be used as any other database: a search function looks for the required string, so that you may, for example, type in "Aunt Mary" to find the date of her birthday, or "car" to find when to send off the cheque for

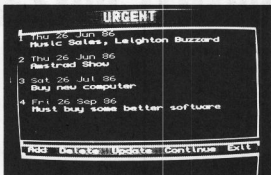
the road tax or book in for an MOT.

But the program is more than this: the next time you switch the machine on, you'll be reminded of urgent dates and appointments, overdue messages which have not been acted upon and so on. Weekly and monthly charts can also be requested, which display a breakdown of appointments with double-bookings being highlighted.

*LBO* is a very easy program to use, and with the 'export-to-Quill' option making hard copy available, this is a genuinely useful "computer diary" – my QL already has all the copy deadline dates and auntie's birthdays . . . oh dear, no more excuses!

Tony Bridge

**Program LBO (Life and Business Organiser) Micro**  
QL Price £19.95 Supplier  
Gemini Computers, Gemini  
House, Concorde Road,  
Exmouth, Devon EX8 4RS.



As far as I'm concerned the clincher is the way the programs are protected. There are several, fairly elementary, methods used, one of them being the old *Ink 7:Paper 7* gag. This was outdated three years ago, and quite frankly I find it impossible to take any program incorporating it serious-

ly. And using *Not Pi* to reduce memory requirement?

John Lettice

**Program Designer and Character Designer Micro**  
Spectrum Price £12.45 Supplier  
Gap Software, 17 St  
John's Terrace, London E7.

# Living with the bomb

Christina Erskine talks to Infocom's Brian Moriarty about his latest adventure, *Trinity*.

**T**ext adventures are very much Infocom's territory; the company has deservedly earned itself a reputation for sophisticated parsing, fiendish puzzles and a rich vein of humour in its 19 titles.

In the US, where Infocom is based, the games are available on all the most popular machines, that is, the Commodore 64, 8-bit Atari, 8-bit Apples, and the IBM PC.

Consequently, the UK has not had much of a chance to enjoy Infocom's adventures en masse. Although the company had a marketing agreement with Softset over here, it did nothing to bring down prices to the level at which British consumers were used to paying, and Infocom has thus had more of a cult status here.

All that is set to change with the acquisition of Infocom by Activision, announced earlier this year. The full Infocom catalogue is set to become more readily available in the UK, and at a cheaper price. Provisional pricing is at three levels: £19.95, £24.99 and £29.99, but Activision has yet to finalise this.

Infocom's 20th text adventure is being unveiled at the Summer CES in Chicago this week. Called *Trinity*, and written by Brian Moriarty, who was also responsible for *Wishbringer* last year, it has all the hallmarks of classic Infocom titles but with a more controversial theme than most.

*Trinity*'s plot centres on the history of atomic weapon testing throughout the world, from the first test site in the Mexico desert, which gave its name, *Trinity*, to the adventure, through Nagasaki, the Pacific islands, to the Siberian wastes.

As the player, you get the chance to visit all these places and try to avert the bomb's detonation. The action takes place in the 'near future', so you have the US's SDI (Star Wars) to contend with as well.

I did a lot of research to make sure everything was as accurate as possible," claims Brian Moriarty.

## Fantasy land

It's a brave subject for a game, and certainly not one you would associate with Infocom's humour. Brian explains:

"I have tried as much as possible to place these real events within a fantasy land. You start off in Kensington Gardens, in London, and enter the rest of the game through a white parterre door, so it's separated from reality in that sense.

"However, all the scenarios are recreated as faithfully as I could. My research was very extensive; I read as much as I could on the bomb and visited some of the test sites, including *Trinity* itself. I started on the *Trinity* project in 1983, but I didn't start actually writing and coding the adventure until about a year ago."

Did all the research, reading and accumulated knowledge change Brian's own

views on the nuclear threat? "I certainly feel I have a better informed philosophy now. But the main game thrust is not one of facts and figures. It still retains a humorous vein, although it's not in bad taste; after all, it's a serious subject."

Brian had wanted to write an adventure featuring the atom bomb for some time; he was interested in the fascination that nuclear weaponry holds over people.

"There is something seductively appealing about it to juvenile minds - it's almost pornographic," he explains. "I remember reading about nuclear technology as a boy - there's something almost God-like about it, because you are almost literally wielding the power of the universe: creating and exploding a hydrogen bomb, for instance, is like manufacturing a star."

"When I began the specific research, I started to see its fascination as pornographic rather than seductive. I can't see how anyone in their right minds could work in a nuclear laboratory, yet, aside from the fact that the uses it is put to are abhorrent, it comes down to a fascination with billion dollar toys."

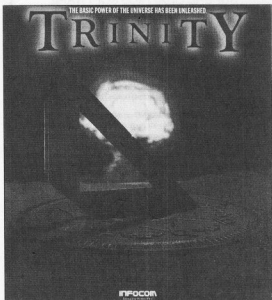
"I hope the game will be both entertaining and thought-provoking. If I get lots of hate-mail because of it, then I'll know that at least I've made people think."

He certainly made Infocom's testers think. A number criticised *Trinity* for being biased towards one faction or another, others stringently checked the accuracy of the scenarios. All Infocom titles spend six to seven months being tested, both in-house, and also by about 100 members of the public, before being released.

True to Infocom tradition, Brian was solely responsible for *Trinity*, its research, design, coding, packaging, and the famous Infocom 'freebies' in the pack. *Trinity* includes a book on the history of the nuclear age, written by Brian himself.

It was coded, as are all the titles on Infocom's own development system, based on a DEC20.

"It looks extremely old-fashioned, like a large set of refrigerators," said Brian.



"But the system itself, which we call ZIL, for Zork Implementation Language, has been refined over the last six years, so that it's now very easy to use, and you don't need a vast amount of programming experience to get to grips with it. ZIL is based on MDL, a high level language which is based on Lisp."

## Nuclear age

The other great advantage of ZIL, is its portability. The completed code for *Trinity*, which took up 1.3 megabytes of space on the DEC20, was compiled down to 256K into 'Z-code', which is entirely machine independent. "All we need after that is a small interpreter for Z-code for each machine. That's why we've always been able to bring out a number of versions of any one title very quickly."

Brian does not foresee any great changes for Infocom, now that it has joined the Activision stable. "We're not moving, we're not changing staff, no-one is coming down from Activision to tell us to put graphics on the adventures - we'll squash that idea before they even think of it - and while we may diversify our range we'll do it carefully. Games based on role-playing systems, like *Wizardry* or *Ultima 3* are a good bet, but there will be no arcade games from Infocom; we're just not interested."

*Trinity* will be launched by Activision under the Infocom label in the UK this summer, for the Commodore 64/128, Apple IIc, Atari ST, Macintosh 512K, Commodore Amiga and IBM PC.





# St Brides meets the Snow Queen

John Minson joins Gerda on her quest to rescue her friend Kay from the Snow Queen

I must confess to loving Hans Christian Andersen's story, *The Snow Queen*. Despite the simplicity of the surface quest, it's full of the deep symbolic meanings that get psycho-analysts so excited, and ruled over by a brooding sense of evil.

I also have a great regard for St Brides, the Irish St Trinian's, whose first adventure was one of last year's oddest releases. Put the two together and you have a quirky two-part classic, which should reach a wide audience thanks to a publishing deal with Mosaic.

## The plot

Kay and Gerda were the best of friends, always together in their small Danish town, until one day the greatest and most wicked of the goblins made a mirror. Everything that was reflected in the glass appeared horrible, but when the goblins tried to take the mirror to Heaven it shattered, showering the earth with its fragments.

Now one of these tiny slivers made its way into Kay's eye and suddenly he became as cold as a stone as the evil worked its terrible distortions. And when, one day as he was playing in the snow, a magnificent sleigh came by, he tied his little sledge to it and was dragged away. Unable to recognise good from evil, he was soon seduced by its driver and became a captive of the terrible Snow Queen.

In the village the people said that Kay had drowned. But Gerda refused to believe that he could be dead and one morning vowed to search for her friend...

## Gameplay

Unusually for an adventure, you play a female character, Gerda... or rather you advise Gerda. She has a mind of her own and sometimes she'll do as she wishes. At one point your advice gets her understandably annoyed and when you try to interrupt the scrolling instructions you'll be put

firmy in your place – until she needs your help again!

The first problem is a traditional one – how to leave the house. I was initially disappointed to find so commonplace a beginning, but when I had the answer all became clear.

```

you-see.
There's lead North and South;
stairs up.

Please tell me what to do next.
Open window.
I'm looking East over the roof
top.

A rose-tree is growing in a high
tree.

Gerda from me is another roof
to another rose tree. (me
looking to the right and the
rose-trees in the early morning
very well. I have done that.
Now shall I do more?
  
```

The initial puzzle teaches you to think of Gerda as a real person. Unless you ask her to do everything you would expect her to, she won't even start her quest. And unlike many adventures, most objects are not signposted here, so think carefully about your surroundings.

To help you on your way there's an abridged version of the story included and careful reading provides a host of clues, but the ladies of St Bride's have carefully interwoven new puzzles, which call for more traditional adventure deduction, into the narrative.

At times you'll find that a little common-sense will take you on a linear course through the story, while at others you'll be racking your brain because you know what you need to do to continue – you just don't know how to do it!

Not that restrictions of vocabulary are going to hinder you. There's a useful list of words on the inlay, which may contain clues, and some quite sophisticated sentences are allowed for an adventure originated with *The Quill*. You can Look Under and Through things as well as Examining them, and you'll need to do a lot of the latter.

My one complaint was the absence of a Ram Save, for though you can't get killed you might get sent back to your Grandmother and an end to your adventuring career!

As expected from St B's it's all very atmospheric and literate with some simple, suitably story book illustrations; and spots of pleas-

antly melancholy theme music. It's both funny and full of mystery – and it's wholly convincing.

Don't let the fact that this is based on a 'fairy tale' and distinctly un-macho put you off. It's a welcome change from the norm. Instead let yourself fall under *The Snow Queen's* spell.

## Tips on playing

- Can't leave the house? Then read the story carefully, look everywhere and remember that cleanliness is next to godliness!

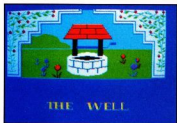
- Gerda will soon be feeling hungry but doesn't have the dough to buy bread. Finders may be keepers but honesty pays dividends so search for a lost purse.

- Trouble with the tear-away rough girls? If Gerda's got a present to bribe them with her journey can continue.

- Attention to the story should get Gerda to the old lady's house – but getting out again isn't so easy!

- Talking to the flowers will help, and to the birds, but Gerda will have to persevere with her reading if she's to get the clue that will open her eyes.

- In the garden an apparently useless



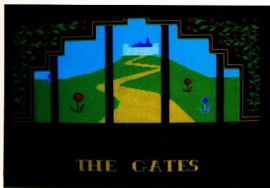
investigation may well pay dividends later so long as Gerda collects a nest egg from the tree.

- At last everything's coming up roses, but how can Gerda open the gate? Obviously somebody has the key but you won't find it if he's gone into town, will you?

- Outside the city returning something to the Raven that's rightly his will win a friend. And don't neglect to reflate your economy with some fruit from a nursery rhyme tree.

- Loitering in the city at night isn't advisable so find the inn before you go bumping into the palace guard.

John Minson



*The Snow Queen* is available for the Spectrum and Commodore, cost £9.95 from Mosaic Software, 187 Upper Street, London N1 1RQ. A hint sheet to take you further in the adventure is available from Snow Queen Dept, St Bride's School, Burtonport, County Donegal, Ireland.

**A SUPERB  
VALUE FOR MONEY OFFER  
FROM  
S.M.T.**

# SILVER REED DAISY WHEEL PRINTER

FOR **£159.95** (PP £5 inc. VAT)

Full 12 months Parts and Labour  
Warranty



Silver Reed EXP500

Look at this feature list:

- 16 C.P.S. LETTER QUALITY PRINT
- Centronics or RS232
- Self Test Function
- Bi-Directional Printing
- Help Hotline

## ALSO

The fantastic **Rotronics Spectrum Wafadrive**

ONLY @ **£49.95** (inc. VAT)

Inc. Free word processor package

OR

Both for **£199.95** (inc. VAT)

To: SMT Freepost, Greens Norton,  
Towcester, N. Hants NN12 8BR

Please supply

Silver Reed exp 500 printer @ £164.95

Rotronics Wafadrive @ £49.95

Both above @ £199.95

RS232 Lead @ £10.85

Centronics lead @ £12.90

My Access/Barclaycard is



NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

Total: \_\_\_\_\_

23P01

## CAREY ELECTRONICS computing and communications

For "The BBC MICRO" & "MASTER SERIES" –  
Computers – Peripherals – Software

WORD-PROCESSOR SPREADSHEET ACCOUNTS DATABASE  
STOCK-CONTROL COMMUNICATIONS C.A.D. SYSTEMS

ACORN AMSTRAD APRICOT ROBOCOM SANYO TORCH

To expand or improve your existing system we can supply:-

MONITORS PRINTERS PRINTER BUFFERS PLOTTERS MODEMS  
DISC DRIVES

### "THE ACORN BBC "MASTER SERIES" IN STOCK "

| BEEBUGSOFT: (ROMS)     | ACORN SOFTWARE: (ROMS) | COMPUTER CONCEPTS:  |
|------------------------|------------------------|---------------------|
| DumpmasterII 31.00     | View 59.80             | Accelerator 64.40   |
| Exmon II 32.00         | Viewsheet 59.80        | Caretaker 33.35     |
| Help II 31.00          | Viewstore 59.80        | Communicator 69.00  |
| Icon Master 34.00      | CHALICE: (ROMS)        | Disc Doctor 33.35   |
| Murom 32.00            | The Scythe 24.00       | Graphics ROM 33.35  |
| Romit 34.00            | ROM Master 16.00       | Inter-Chart 36.80   |
| Sleuth 32.00           | CLARES: (ROM)          | Inter-Sheet 56.35   |
| Spellcheck III 36.00   | Brom 34.50             | Speech 33.35        |
| Toolkit Plus 39.00     | GEMINI: (ROMS)         | Termi II 33.35      |
| Worcase 29.00          | Data Gem 79.95         | Wordwise 46.00      |
| A.C.P. "ADT ROM" 34.50 | L.B.O. 19.95           | Wordwise Plus 56.35 |

**It's AFTER the SALE, that SERVICE counts!!**

PRICES INCLUDE V.A.T. @ 15% PLEASE ADD 75p POST & PACKING

7 Church Road, WALTON-ON-NAZE, Essex. CO14 8DF  
Tel: Frinton-on-Sea (02556) 6993 (9am to 9pm)

Acorn, Amstrad, Apricot, Prestel, Robocom, Sanyo, and Torch  
are all Registered Trade Marks

23P0007

IF YOU OWN A DRAGON 32/64 HERE'S  
YOUR LAST CHANCE TO PURCHASE THE  
NEW DE-LUXE LIGHT PEN FROM TROJAN  
AT A FABULOUS 50% DISCOUNT

NOW YOU HAVE ALL THREE COUPONS,  
THE LIGHT PEN CAN BE YOURS FOR

**ONLY £8.50.**

SEND THEM ALONG WITH YOUR ADDRESS  
AND CHEQUE TO: TROJAN PRODUCTS, 166  
DERLWYN, DUNVANT, SWANSEA, WEST  
GLAMORGAN SA2 7PF.



**TROJAN**   
Micro Computer Software & Accessories

23P0004



## Telescopic vision

*Tony Kendle provides some tips for those wanting to enjoy the complexities of Mercenary, plus listings to help you sail through Starion and Nightshade*

It's always fascinating to see just which games provoke the most reaction from our readers, and certainly the one that seems to have struck the deepest chord with Commodore and Atari owners is *Mercenary*. Following our solution to the game published a few weeks ago I have had yet another letter from someone eager to point out aspects and complexities that we had missed.

Steve Baker of Barry in South Glamorgan has these four extra tips:

1 The Anti-Time bomb does not just stop destroying buildings, it also allows you to re-build a destroyed building by firing at it. This makes it possible to correct mistakes and play the game indefinitely.

2 If you are being attacked by a Paylor or a mechanoid ship fly backwards. This tactic makes it very easy to avoid them.

3 If you are being attacked and cannot destroy the enemy, land and get out the ship. Doing this will mean that when you are hit the ship is not destroyed and you can get back in it.

4 You have mentioned that you can transport yourself down from the space station using the door with the symbol on it in the laboratory. However, when you come out in the land base you will find that everything is now displayed in a mirror image and you will need to look at your map in reverse. (This works on the Atari version anyway).

Well, thanks for the extra help, Steve. *Mercenary* seems to have combined those elusive qualities of immediate fun, good graphics and sufficient strategy to keep people coming back even after they have

finished it. The only thing wrong is that it isn't available on more machines, and I suggest that all Spectrum owners, etc, should barrage Novogen with complaining letters.

As promised the other week, here is another welcome communication from our correspondents Julian Lyndon-Smith and Kean "Suggsy" Johnson who together are Hackers Unlimited. Before we get on and publish their latest Amstrad Pokes, this time for *Nightshade* and *Starion*, we have a message from the pair.

### Working routine

"We are looking for someone overseas to join Hackers Unlimited so that we can have some sort of contact over in the UK. Could you please ask anyone who thinks that they have the qualifications (presumably an interest in Amstrad hacking) to write to us at: JM Lyndon-Smith, 83 High Street, Berea, Johannesburg, South Africa, or Kean Johnston P.O. Box 12063, Benoryn, 1504, Transvaal South Africa.

"The first routine, listing 1, is for the fantastic game *Starion* which seems to have frustrated nearly everyone since it was released. The cheat routine will cause your "Hull Temp" to remain constant thus eliminating 95% of the likelihood of your demise. To run the cheat, rewind the tape to the start, press play and Run listing 1 which will automatically skip the basic loader.

"Do not worry about the screen display - if your monitor displays garbage then the routine is working.

### Listing 2 - Infinte Lives for Nightshade

```
10 REM *** From Hackers Unlimited
***
20 MODE 1:INK 0,0:INK 1,6:INK
INK 3,15:BORDER 0:MEMORY %12FF
30 LOAD:"npc",%1300:CALL %1300:
LOAD:"",%1300:POKE %BFD3,0:
CALL %1300
```

"Because of the large number of data statements, we have included a checksum at the end of each line which should ensure accurate typing.

"Listing 2 gives infinite lives for *Nightshade*. Again rewind the tape to the start and run the routine, although this time the game will appear to load and run as normal."

Can I just remind you of the Hackers' promise that anyone having trouble using the Pokes for the tape version of *Sorcery* can blame it on changes in the hardware compared to their 464's. A revised routine will be delivered soon.

### Unique background

Martech has released one of its strongest titles to date with *This Planets*, a program that combines gameplay with "education" in a more successful way than ever before. In fact the educational content really works to add a unique background and depth of interest to the game rather than being the reverse; a way to sweeten the medicine with a game. It's certainly a good compromise to look for if your parents/partner keep asking why you don't do something useful with your Spectrum rather than just playing *Bomb Jack*.

Of particular interest is an announcement that Martech is planning a competition based on the game. "Within the program are a number of clues for the solution of the very difficult 'Alien Game' and we thought that the first person to manage it deserves a prize. We thought it would be appropriate to offer a telescope."

Media astronomer, and consultant to Martech, Heather Couper will choose the particular model but it is promised to be high quality. If anyone does solve it in the near future contact Martech immediately, or us if you don't have the address.

### Listing 1 - Constant Hull Temp for Starion

```
10 REM *** Starion - Cracked by Hackers Unlimited ***
20 MODE 1:INK 0,0:INK 1,6:INK 2,18:INK 3,26:BORDER 0
30 MEMORY %3FFF:LOAD"loader",%8000
40 add=%C000:FOR lin=100 TO 120 STEP 10
50 FOR dat=1 TO 21:READ a%:a=VAL("&"+a%):POKE add,a:tot=tot+a:add
add=1:NEXT
60 READ a%:a=VAL("&"+a%):IF tot<a THEN PRINT"Data error in line
:":lin=NEXT
70 tot=0:NEXT:tot=0:add=%8000
80 FOR dat=1 TO 21:READ a%:a=VAL("&"+a%):POKE add,a:tot=tot+a:add
add=1:NEXT
90 IF tot<>%SD1 THEN PRINT "Data error in line : 130":END ELSE
CALL %C000
100 DATA %E,00,32,45,80,32,51,80,21,00,80,11,00,FF,01,FF,00,ED,80,
21,7B,0722
110 DATA 02,11,00,A4,3E,99,CD,A1,BC,3E,C9,32,AA,06,21,00,FF,E5,21,
00,00,08B7
120 DATA 11,00,3E,3E,99,C3,A1,BC,00,00,00,00,00,00,00,00,00,00,
00,00,0346
130 DATA 21,7B,02,11,00,00,01,00,A4,F3,ED,80,C3,2B,FF,00,00,00,00,
00,00,05D1
```

## Degenerate criminals

**H**ow do you write a brilliant game? Start with superb, animated graphics, add some great background music and sound effects, stir in some fine arcade action, a tricky puzzle, and fast gameplay under joystick control. Right?

Right. Enter *Nexus*, the first game from Nexus – a new software house made up of several former Beyond people. You are a reporter sent into the HQ of a Colombian drug baron. Your mission is twofold – first, find your friend who is being held captive there; second, get the real story behind this degenerate criminal empire.

You're up against a massive organisation, but on your side you have Nexus, an underground organisation which has infiltrated the complex. Its members will supply you with guns, a camera, and security passes to gain access to different areas.

If you don't have the right pass for each area you can still operate – but keep an eye open

for the guards and a finger on your stun gun trigger. You need to search hundreds of rooms and corridors to find your friend, and the 128 bits of information you need for your story. You also score extra points for taking pictures.

Gameplay is a sort of cross between *Impossible Mission* and *Enigma Force*, combining the best elements of both. The screen is split into several sections – an animated window which shows the action; a larger map of each corridor showing your current position; two areas for displaying digitised mugshots of Nexus agents; a message area showing conversation between yourself and other characters; and a



## Ultimate back on form

**T**hose days when Ultimate releases were eagerly awaited have well and truly gone (the disappointment of *Cyberun* saw to that) – but with the release of *Pentagram*, there are definite signs that the doldrums at Ashby-de-la-Zouch may be over.

On loading the game, you are presented with the now very familiar single colour 3-D side-on display à la *Knight Lore*. While it's certainly another arcade/puzzle/adventure in the classic Ultimate style, on playing it, I was captivated by the deviousness of the tricks, the humour and atmosphere created by the various sprites and graphics – plus the fact that this one is going to be very, very tricky to complete.

The scenario is, as usual, fairly vague. You control the sabreman in his quest for the pentagram, and the inlay is covered with assorted mumbo jumbo, which, I expect, contains various clues too deep for me to fathom.

Controls are rotate left/right, walk, jump, pick up/drop (I

haven't found anything I can do this to yet) and, yippee, fire, supported via keyboard, or Kempston, Cursor and Interface II joystick. Yes, you can zap things, and you'll find you have to.

If you hang around in a location long enough, you are attacked by witches on broomsticks, zombies, amoeba, and the most realistic looking bed mites I have ever seen.

As for the main quest, well, who knows how you are going to go about solving it – so far I've got nowhere... but the feeling of I'll-just-have-one-more-go is still there.

Don't expect to be stunned by the originality of presentation – but lovers of *Knight Lore* et al will not be disappointed here.

John Cook

**Program Pentagram Micro**  
Spectrum 48K (128K compatible) **Price** £9.95 **Supplier**  
US Gold, 10, Heneage St,  
Parkway Industrial Centre,  
Birmingham.

large block which tells you what actions are possible, and what you find in different locations.

You can also call up a separate screen which allows you to change weapons, take pictures, review your score or – in dire straits – restart the game.

One feature missing, and it's a major omission, is the facility to save a game in progress. Nexus says this couldn't be implemented on the 64 version, although it will be used in other versions. After much practice, however, it should be possible to complete the game in one session.

My other reservation is whether there is sufficient vari-

ety in play to maintain interest over a long period, but the fight sequences are great fun as your hero somersaults, slides, rolls, punches and drop-kicks his way past the opposition. Or shoot them – simpler but rather unsporting.

Nexus deserves to be a big hit and it is a first-class debut for this new software house. Arcade fans should snap it up.

Peter Worlock

**Program Nexus Micro**  
Commodore 64 **Price** £9.95 cassette, £12.95 disc **Supplier**  
Nexus Productions, DSB House, 30 High Street, Beckenham, Kent BR2 1AY.

## Burning rubber

**I**t's a jungle out there. The city is overrun with drug pushers, hit-teams cruise the streets and Mr Big is running the stuff into town in armoured cars. Faced with problems like these the city fathers had to turn to you.

The equipment you're given isn't a bazooka, half a dozen tank traps and a squad of National Guard, however – it's a 150 mph Lotus Turbo Esprit. It also houses a 20mm cannon (and you thought it was a cigar lighter) powerful enough to make the question "do you feel lucky, punk?" somewhat academic.

Armed with the above kit, you burn rubber up and down the city streets searching for the drug dealers. These can be recognised by their red, black and white cars while innocent traffic is blue or yellow.

To intercept them you have to scream through the streets, checking their position every now and then on your comput-

erised map. You can then carry out a summary Judge Dredd-style execution with the cannon, or score extra points by arresting them by bumping them from the rear.

The racing simulation part of the game is fairly rudimentary – you've no gears, and steer from lane to lane with joystick left and right. You have to stop at a garage to refuel every now and again, and have four cars to use.

Maybe it's the peculiar plot, but I found this one difficult to relate to. I feel that too much of the game is spent intercepting the opposition, and not enough in actually grabbing them when you've tracked them down. I'm afraid I don't feel driven to buy this one...

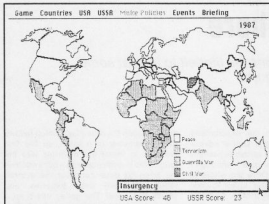
John Lettice

**Program Turbo Esprit Micro**  
Amstrad **Price** £8.50 **Supplier**  
Durell Software, Castle Lodge, Castle Green, Taunton.





## Diplomatic crisis



The evolution of computer games has been dramatic – in a few years we've gone from crude Invaders-type shoot 'em ups to *Elite*; from the imaginative but patchy graphics of *Manic Miner* to the superb animation of *Impossible Mission*; and from the moronic parsers of early adventures to the intelligence of Infocom games.

This year has seen a similar breakthrough in strategy games with the release of *Balance of Power* on the Macintosh. Written by Chris Crawford (of *Eastern Front* and *Legionnaire* fame), *Balance of Power* goes further than any other game in putting the real world inside your computer.

The object of the game is simple: to increase your coun-

try's prestige around the world without provoking a nuclear war. If you launch a nuclear strike, you lose. If your opponent launches a nuclear strike, you lose. If either side causes an accidental nuclear war, you lose.

You gain prestige by supporting friendly governments and trying to subvert hostile ones. Throughout the game, different countries will endure civil wars and revolutions – you support the side which will favour your country.

You can choose to play against the computer or against another human, controlling either the USA or the USSR. The best games are against the computer.

The game runs from 1986 to 1994 and each turn takes a

year. In the Beginner level, your choices are simple: ship arms to a government or its rebel opposition, or – more drastically – send in your own troops to support one side.

When each side has made its plans for the year, the opponent can question and oppose them. Initially, this takes the form of a quiet chat between the two nations. If neither side will back down, it becomes a diplomatic crisis and prestige is at stake. If things escalate to a military crisis, even more prestige is on the line and the risk of nuclear holocaust increases.

The game is won or lost on crisis management. You must pick your fights carefully and the computer plays a very intelligent game, so bluff and bluster will rarely succeed.

In higher levels of play, you

have increasing options such as using economic aid to win friends and influence people, sending in the CIA or KGB to provoke anti-government incidents, using your diplomatic corps to sway public opinion, and making treaties.

*Balance of Power* is a game of unsurpassed excellence. It has intelligence, subtlety and an enormous amount of detail – and in key confrontations the suspense is killing.

Although at present versions are available only for the Mac and IBM PC, an Atari ST version is likely.

Peter Warlock

**Program** *Balance of Power*  
Micro Macintosh 128 Price  
£26.95 Supplier Mirrorsoft,  
Purnell Book Centre,  
Paulton, Bristol BS18 5LQ.

## Tomato purée

Take cover! The Killer Tomatoes are on the loose! Prepare yourself to be sterilised with fear (it says here) as you plunge into the squishiest game ever, *Attack of the Killer Tomatoes*.

Based on the winner of one of the coveted Turkey movie awards, the game could well have been as much of a turkey as the film. However, *Tomatoes* is saved by a whacky sense of humour and a challenging game method.

You play Wimp Plasbott (?!), unremarkable vegetable processing operative, who clocks on at the PuraTom plant one day to find that the tomatoes have mutated. Moving through umpty-several screens shown in the familiar 45-degree perspective, you must help Wimp to stun rogue tomatoes by jumping on them,

pick them up and carry them to the crusher, then deliver tomato-puree to the pizza parlour. But... beware of the KILLER TOMATOES!

Fast and deadly, they can only be defeated by weapons found around the factory – but I haven't yet found out how to destroy them.

With so many companies bringing out turkeys unintentionally, it's good to see Global making such fun out of a deliberately ridiculous scenario. I'm looking forward to seeing the game of *Absolute Beginners*...

Chris Jenkins

**Program** *Attack of the Killer Tomatoes* Micro Spectrum  
48K Price £7.95 Supplier  
Global Software, PO Box 67,  
London SW11 1BS.

## Elves and spells

Where to begin, faced with value which is outstanding even for the budget labels' budget label, Central Solutions? There's nothing amazingly good... but nothing amazingly bad either, for which we must thank the ever popular *Quill*.

You could almost see this as a survey of mainstream adventuring. There's a predominance of elves and spells and quests for mystical rings – the usual blame-it-on-Tolkien stuff. Then there's a pirate treasure hunt; a dream world made true; some sci-fi, etc, etc.

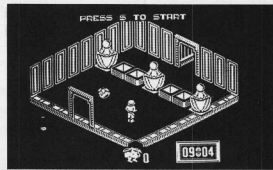
From my quick overview, the games all seemed to demonstrate reasonable competence.

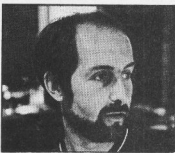
Some showed humour; others generated atmosphere with lengthy preambles.

So do you buy? The question is whether you can stand to play another *Quill*-ed adventure without screaming. If you can and you don't expect the state of the art but are merely looking for a diversion, then you won't go far wrong.

John Minson

**Program** 10 Adventure  
Game Pack Vol 2 Micro  
Spectrum 48K Price £6.95  
Supplier Central Solutions  
Ltd, 500 Chesham House,  
150 Regent Street, London  
W1R 5FA.





## Water, water everywhere

*Tony Bridge dons his lifebelt to look at some nautical adventures*

**A**vast me hearties, splice the timbers and shiver me mainbrace – or, er... sorry about the lapse into Newtense, but there's a definite nautical flavour to The Corner this week, brought about by four Quill'd programs, the first three for the Commodore 64.

*Eye of Java* is one that has been lying around on my desk for several weeks now, and I'm afraid that I have a confession to make – the name and address of the author have been mislaid, and appear nowhere in the program itself! If the author reads this please get in touch so that I can pass on your name.

The adventure is text-only of course, white on blue: the scenario is standard issue – "find the *Eye of Java* in the depths of the castle, then destroy the evil siren". There's a lot of exploring to do on the beach, which is where you start off – several caves are repositories of valuable items.

### Changing light

The atmosphere is quite nicely handled, with some evocative descriptions of the seashore and the various caves: a touch that I particularly liked was the way time seems to pass as you revisit locations. As

the day wears on, so the descriptions reflect the changing light. Quill'd adventures need touches such as this to prevent them falling into the "formula": although I haven't had time to explore the whole of this adventure, I'd like the author to contact me, if possible with a map, so that I can see more and pass on more comments to readers.

From Jon White of Hallmark Software comes *Rescue Party*, the second of our Quill'd Commodore games (both of which are on disc). Again, the player is plonked on to a desert island, this time after a massive volcanic explosion. As usual (I don't know why), you don't seem to know who you are, or what you're doing here, but you can bet your sweet bippy that before you get home to *East Enders*, you're going to have a few problems! You are told your task: to find two adventurers lost together on an important historical find.

Rather than discovering yourself on the beach, this time you are in a small boat, and the first few problems take place in the cramped conditions on board. Examining locations yields several useful objects, among which are batteries and a torch. And, surprise, surprise, Jon White has, of course, like every adventure-writer before

him, included the dark place which follows every discovery of a torch, so the first move is to insert the batteries into the torch. This is quite possible – but switching the torch on does not yield the desired result. Obviously dead batteries, and what's this here? The galley offers up a warm stove, so I tried popping the batteries therein, in the hope that they might be warmed into life; no go, I'm afraid.

Without the torch, the player can't get up on deck, so after a quick look, I'm stymied. However, this start is promising, with rather short descriptions, but sensible and enthralling problems: I'm sure that the adventure must get even more engrossing later on and hope to bring you an update on my progress. Write to Hallmark Software, 122 Springhills, Harlow, Essex CM20 1TB.

### Sound effects

I have always associated Colleen Software with programs for the Amstrad machines, but now they have moved across to the Commodore with a text adventure, *Mystery Voyage*. It may not contain any pictures, but there is an awful lot of sound effects and music to keep the player occupied. James Molloy of Colleen tells me that

## Adventure Helpline

**Terraform on Spectrum.** How do I open the spaceship's exit hatch? John Richards, 12 The Willows, Selsey, W. Sussex, PO20 0JT.

**The Pawn on QL.** How do I get past the alchemists. How to get planks? What are tree stump and garden tools for? J. P. Walker, 3 Moss Rise, The Mount, Mapperley, Nottingham, NG3 6GG.

**Se-Kaa of Assiah on Spectrum.** I cannot get past the dwarf to enter the crystal palace. P. Clippson, 8 Marrams Avenue, Cromer, Norfolk.

**Stolen Camp on BBC B.** How do you get the key from the key box? Daniel Tilley, 4 St Bernard Road, Colchester, Essex (Tel 843220).

**Gremlins on Spectrum.** How do you kill the gremlins and what is needed? Andrew Taylor, 65 Edward Street, Grimsby, S. Humberside.

**Sphinx Adventure on Electron.** No progress. Any help most welcome. Robert Davies, 2H Rectory Road, Salford, Crumlin, Gwent, S. Wales.

**Zim Salabin on Commodore 64.** How do you get into the palace? Any other help gratefully received. T. Stokes, 95 Lower Drayton Lane, Drayton, Portsmouth, P06 2HE.

**Heavy on the Magick on Spectrum.** Password for Quadra Porta, Dave Jones, 12 York Close, Beckton, London E8 4QN.

**Lords of Time on Amstrad.** I can't get past the cavern. Jane Fisher, New Hall, Cambridge CB3 0DF.

**Red Moon on Amstrad.** How do I create the bridge? I've got the acorn and the scroll. Jane Fisher, New Hall, Cambridge CB3 0DF.

**Classic Adventure on MSX.** I have all 15 treasures, but I can't find the end of the game – what next? I have scored 150/210 Michele Drabwell, 17 The Gladway, Waltham Abbey, Essex.

## Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand.

Fill in the coupon, explaining your problem, send it to us, and a fellow adventurer may be able to help.

Remember – the system only works if those adventurers who have solved the puzzles get in touch. Every week is Save An Adventurer Today (SAAT) week!

Adventure..... on (Micro).....  
Problem.....  
Name.....  
Address.....

these were created with their new package, *The Colleen Music Compendium*, to be released at the PCW show in September. The results, as previewed in this adventure, are very interesting for Commodore owners.

The opening scene of *Mystery Voyage* has the almost lifelike voice of the ship's captain shouting "man the lifeboats" and other such social niceties. The screen clears and then you find yourself adrift on a raft in the blazing sun: it's a simple matter to paddle ashore, and then you're on a beach again. For some reason, beaches hold a strange fascination for adventure-writers: I suppose the first lot of a few million grains of sand looks much like the next, which lets the writer off the hook when it comes to writing a good, meaty description. Back at the *Voyage*, your exploration of the beach is accompanied by some great music, and some not-so-great sound effects. The effects themselves are well-done, the problem is the frequency of the effects: for example, visiting a certain doom-laden location means sitting through several seconds of ghostly doom-laden suspense chords, OK the first time and a help in creating the atmosphere, but at subsequent hearings, extremely frustrating.

Apart from this, the adventure cracks along at a good rate – although I poked a bit of fun at the "beach locations", quite a good deal of atmosphere is present, and

the adventure develops well with new locations presenting new problems. Some of these problems can get rather tasteless: at one point, you stumble upon a maggot-ridden corpse, and closer examination reveals – your breakfast, I'm afraid! The resulting pool of vomit (I know, it's disgusting, isn't it?), can be examined, but I wouldn't recommend it.

*Mystery Voyage* is an interesting romp, with a lot of atmosphere and although the music can sometimes become irritating, there's no denying that it is accomplished with a certain style. The spelling of my copy is rather atrocious, but I imagine that this will have been thoroughly checked by release date. The adventure is in three parts, with passwords into the second and third parts, but the asking price of £14.95 is a bit steep to say the least.

## Tiresome chore

Available now for the CBM 64/128 and later for the Atari and Amstrad ranges, it's worth looking at if Colleen take the necessary action. Contact Colleen Software, 18 Bishop Street, Penygraig, CF40 1PQ or telephone Tonyandy (0443) 434846.

The final sailor's delight this week is from the experienced *Quill* of Torrance and Liddle, whose previous effort, *Subsunk*, was one of the most under-rated adventures of '85. The sequel, *Seabase Delta*, is now available from Firebird in their silver 199 range, and it's even better.

Documents found on a body in the first location reveal that a missile is aimed at the "British base and will fire as planned". That's it as far as scene-setting goes, but presumably, you must get your finger out and somehow stop the missile. Also on or about the body, you'll find a card of the type which, in adventures, are just asking to be inserted in a slot somewhere. Sure enough, the card is the secret to getting about in the seabase: in the travel tube is a car waiting for you. The pretty tedious sequence of *Wear (seat) Belt, Insert Card* must be gone through each time you want to travel, and the time taken for whooshing sound effects (covering up the computer's processing time) all adds up to a rather tiresome chore that unfortunately just has to be put up with. There are quicker ways of travelling, luckily – for example, an elevator will take you from this first level up to the second, and a quick slide down a mail-chute will get you back.

The illustrations are pretty good, though re-drawing them on each visit to a location adds to the frustration. But the authors can't be accused of being stingy with the objects, as you'll stumble over dozens of 'em. You can't carry them all of course, so they must be used wisely and in the proper sequence.

All in all, then, a good game, with plenty of humour, lots of easily-visited locations, lots of objects and plenty of problems (not all easy) to be chewed over.

# MODEM HOUSE

## BARGAIN BASEMENT

### It's 1986 – The Year of Communications

Discover Prestel, Micronet 800, Viewfax, bulletin boards and open a whole new world.

Everybody's doing it — linking their home computers to giant mainframes and networking to thousands of other micro users via the phone and a modem.

A whole new world of mainframe games, electronic mail, free 'teleshopping', electronic notice boards, real time conversation, armchair shopping and home-banking will be at your fingertips! And at local and cheap rate, charges are only around 40p for a whole hour's entertainment for Prestel/Micronet.

The BBC Micropack comes complete with all the software (in ROM) required to access the world of electronic communications, networks, teleshopping and databases (both in public and private.)

**ONCE ONLY OFFER — £29.95** inc. of VAT and P&P for limited period only

**NEW...** The very latest COMMSOFT ROM suitable for the BBC B, BBC Plus and MASTER SERIES — **£29.95** ex VAT

The Modem 2000 provides 1200/75 baud, enabling access to Prestel, Micronet 800, BT Gold, Farmlink, CitiServices, Homelink, and some free bulletin boards (some databases and networks require a small subscription). Fully BT Approved.

Simply clip the coupon and send it with a cheque (payable to Modem House) to:

**MODEM HOUSE**  
70 Longbrook Street,  
Exeter, Devon EX4 7AP  
Tel. (0392) 213355



Please send me:

- ☐ Modem 2000(s) **£29.95**  
☐ COMMSOFT ROM **£34.95**

I enclose £

Name .....

Address .....

Telephone .....

Please allow 28 day delivery. Access/Visa No  
This offer applies only while stocks last

# DO YOU WANT TO BE A HERO?



The result of unique co-operation between three ace software developers and the Biggles film production company, Biggles - The Untold Story will knock you right out of the air! It's a multi-part arcade strategy game in which each part must be completed to reach your final goal.

In the air, on the rooftops, on the ground, or in the trenches

## YOU CAN BE A HERO!

**Coming In May**

Commodore 64  
Spectrum 48K

£9.95 tape, £12.95 disk  
£9.95 tape

**Coming In June**

Amstrad CPC

£9.95 tape, £14.95 disk

**MIRRORSOFT**

Purnell Book Centre, Paulton, Bristol BS18 5LQ

# C things differently

Leon Heller kicks off our series on computer languages with an introductory article on C

Until comparatively recently, C has had a reputation for being something of a "cult" language, used mainly under the Unix operating system on minicomputers like the PDP-11 by people in university computer science departments. Being a fairly simple, concise language, C can be implemented quite easily on micros, even low-cost home computers, which are not very different in terms of power and memory capacity from the minicomputers on which it was first developed.

## The history of C

Like a lot of other good things (such as the transistor) C comes from AT & T Bell Labs, in the US. The language has a British ancestry, in that it is based on BCPL, a language developed at the Cambridge University Computer Laboratory, which is still in use today.

Dennis Ritchie, at Bell Labs, first designed a language called B, which was quite close to BCPL. This was further developed into C, as we know it today. In fact, for a brief period, the language was called NB, standing for Not B!

## The C philosophy

C is a general-purpose programming language which encourages the writing of concise, efficient programs. The actual language itself is quite small, with most of the functions (such as Input/Output) that are part of other languages, provided in the form of a library. C is often used as a "systems programming language", for writing operating systems (Unix is written in C), compilers (most C compilers are written in C), text editors, etc., and has been described as a "low-level" high-level language, in that it allows the programmer to operate directly on bytes, numbers and machine addresses. However, since most implementations have floating point, and allow complex data structures to be manipulated with ease, C is also ideal for so-called applications programming – accounting packages, stock control, etc.

## How the language is implemented

C is usually implemented as a "compiler", that is, a program (source code) is translated by the C compiler, into machine code (object code), which may then be executed. Interpreters, like Basic, take the program, a statement at a time, check each statement to make sure it is valid according to the "rules" of the language, and then execute it, usually by a call to a

machine language subroutine. Since compilers check the program only once, at the compilation stage, compiled programs run much faster than interpreted programs.

Some C compilers translate the program into assembly language, which is then assembled, generating object code, and so-called "relocatable" object modules are often produced. These are then linked, with a library, to produce an executable program, but the end result is the same – a stand-alone machine language program. Compiled programs typically run very much faster than interpreted programs, and have the added advantage that the code cannot be "broken into" by the user, and modified, without a great deal of trouble. Copy protection is also much easier to achieve.

## Programming in C

C programs are built-up from functions (which may or may not return a value), which are similar to subroutines. A program must contain one function, where execution commences, which is called "main". Main usually calls other functions, either in the same program, or in external libraries, here is a simple program:

```
/* a simple program */
#include <stdio.h>
main()
{
    puts ("A simple program");
    exit (0);
}
puts(s)
char s[];
{
    int i;
    i = 0;
```

SOFTWARE FOR THE ATARI ST



LATTICE C

METACOMP

```
while (s[i] != '\0')
    putchar(s[i] + 1);
```

The first line is a comment. Comments are enclosed by "/\*" and "\*/", and may be placed anywhere in a program, and may extend over several lines. The second line is an instruction to the pre-processor (a program that runs before the compiler) to include the header file `stdio.h`.

This header file usually contains definitions of constants, variables and macros used by the I/O library. All instructions to the pre-processor are prefixed by a hash sign.

Next comes the main function, which has no parameters, hence the empty brackets. The body of the function is enclosed in braces (curly brackets), and the

continued over the page ►

## Special C offer

You've read the feature – now program the machine! *Popular Computing Weekly* has arranged a series of special offers to enable you to program in C on your own micro at a bargain price.

Just fill in the coupon below, write a cheque or postal order payable to Sunshine Publications – and send it off to our usual address: 12-13 Little Newport St, London WC2E. Please mark your envelope 'Special C Offer'. Offer closes June 30 – so hurry!

Please send me:

- |  |     |
|--|-----|
| <input type="checkbox"/> ( ) Copy(ies) of <i>HiSoft C for Spectrum</i> – normally £25, now £22.50 each               | £ : |
| <input type="checkbox"/> ( ) Copy(ies) of <i>HiSoft C for Amstrad (CP/M disc)</i> – normally £39.95, now £35.95 each | £ : |
| <input type="checkbox"/> ( ) Copy(ies) of <i>Super C on Commodore 64 (disc)</i> – normally £54.95, now £54.94 each   | £ : |
| <input type="checkbox"/> ( ) Copy(ies) of <i>GST Small C on QL</i> – normally £59, now £39.95 each                   | £ : |
| <input type="checkbox"/> ( ) Copy(ies) of <i>GST Small C on Atari ST</i> – normally £59, now £39.95 each             | £ : |
| Total amount enclosed  | £ : |

Cheques/PO's payable to Sunshine Publications. Offer closes June 30.

Name .....

Address .....



first statement outputs the string "A simple program", and the second statement results in the termination of the program, via the library function exit.

The zero parameter means that no error code is to be passed back to the operating system. Each statement in C is terminated by a semi-colon. Several statements may be placed on a line, although this is usually regarded as bad practice by most C aficionados, as it can make programs difficult to read.

Although a *puts* function is provided with most compilers, there is nothing at all to stop you writing your own, which we have done here. This time, the function does have a parameter, the character array (which is how strings are represented in C) called *s*.

Strings are terminated by a null byte, represented by '\0', so the *puts* function keeps outputting characters from the string, until the terminating null byte is reached. *i++* is the same as *i = i + 1*, which could have been used, instead. There are many other concise ways of doing things in C.

C is a "typed" language, in that all variables must be declared to the compiler before use, as integer, floating point, character, etc.

Experienced C programmers tend to use "pointers", which are variables that contain the addresses of other variables, rather than array subscripts, as in the

above example. The *puts* function may be re-written using pointers as:

```
puts(s)
char *s;
{
    while (*s) putchar(*s++);
}
```

This will probably generate more efficient code, and is more concise, if harder to understand. Other useful features of the language are that variables (like *i* in the first example) defined within a function are "local" to that function, and may be used elsewhere without any problems.

Variables defined outside any function are "globals". C allows you to put various different data items, such as a person's name, address and age, into one "structure", and deal with it as a single entity - very useful for commercial programming.

## More about C

Whatever other books you get, a copy of *The C Programming Language* by Kernighan and Ritchie (usually abbreviated to K & R) is essential, although it is rather expensive. It's very well written and is still the best book for learning the language. Sunshine Publications, the publisher of this magazine, also have a book out currently, called *The C Compendium* by David Lawrence and Mark England (£12.95), for both beginners and those wishing to expand their knowledge.

## Buyers' Guide

**Program HiSoft C Micro Spectrum Price**  
£25.00 **Supplier** Hi-Soft, 180 High St, Dunstable, Bedfordshire, Tel (0582) 696421

**Program Super C Micro Commodore 64 Price**  
£64.95 **Supplier** First Publishing, Unit 208, Horseshoe Park, Horseshoe Rd, Pangbourne, Berks, Tel (07357) 5244.

**Program HiSoft C Micro Amstrad disc (or any CP/M Z80 based system) Price** £39.95 **Supplier** Hi-Soft, 180 High St, Dunstable, Bedfordshire, Tel (0582) 696421

**Program Lattice C Compiler Micro Atari ST Price** £99.95 **Supplier** Metacomco, 26 Portland Square, Bristol BS2 8RZ, Tel (0272) 428781.

**Program GST C Compiler Micro Atari ST Price** £59.00 **Supplier** Electric Software, Unit 8, Cromwell Business Centre, New Rd, St Ives, Tel (0480) 66433.

**Program Lattice C Compiler Micro QL Price** £99.95 **Supplier** Metacomco, 26 Portland Square, Bristol BS2 8RZ, Tel (0272) 428781.

**Program GST C Compiler Micro QL Price** £59.95 **Supplier** Electric Software, Unit 8, Cromwell Business Centre, New Rd, St Ives, Tel (0480) 66433.

**Program Lattice C Compiler Micro Commodore Amiga Price** £129.95 **Supplier** Metacomco, 26 Portland Square, Bristol BS2 8RZ, Tel (0272) 428781.

# HISOFT

## AMSTRAD

**£34.95**  
tape

**£39.95**  
disc

All our versions of C adhere very closely to the Kernighan & Ritchie definition of the language with the exception of floating-point. The Amstrad and Spectrum versions come with libraries supporting the sound and graphics of these machines (including GSX for Amstrad CPC6128 and PCW8256/8512!). The compilers are very fast, produce quick, compact code and come with interactive editors which make error correction a natural part of the programming process. See the reviews in this issue for details.

## CP/M

**£39.95**

HiSoft has many other languages & utilities for popular micros e.g. Devpac80 (assembler & debugger for CP/M £39.95), Pascal80 (fast Pascal compiler for CP/M £39.95), TurboBASIC (integer BASIC compiler for Amstrad £19.95), Write Hand Man (Sidekick desk accessory for CP/M £29.95). Please phone or write for a full catalogue. All products come with a comprehensive manual & are backed-up by HiSoft's renowned service. Order by phone using Access or Visa cards or send in a cheque.

## MSX

**£39.95**  
disc

## SPECTRUM

**!NEW! Version 1.3 £25**

£5 to upgrade from an old version

**HiSoft 180 High Street North Dunstable Beds LU6 1AT (0582) 696421**



## ADDRESS MASTER

by B Baxter

This is the second and final part of the Address Master program, started last week. As stated last week, the program is set up for cassette storage and Epson printer, but feel free to tweak it to suit your individual requirements!

Tape copies are available at a cost of £2.50 from the author. Write to PO Box 17, Burnham on Sea, Somerset, TA8 1DT.

### Program Notes

#### Line No

10 - 350 Initial Set Up and Menu  
360 - 830 Instructions  
840 - 1090 Create New List  
1100 - 1210 Keyboards Input  
1220 - 1430 Alphabetical Sort  
1440 - 1570 Add New Name & Address  
1580 - 1750 Delete New Name & Address

1760 - 2130 Search Routine  
2140 - 2300 Printer Output Routine  
2310 - 2480 Save List to Cassette  
2490 - 2690 Load Cassette List  
2700 - 2800 End Routine  
2810 - 2950 Output to Labels  
2960 - 3130 Output to Labels

### String & Variables

N\$ = Name String  
A\$ = Address Strings 1-4  
E\$ = End of File Marker  
K\$ = Response String  
P\$ = Response String Return  
B\$ = Filename String  
Q\$ = Quotes "" String  
C = File Counter  
M = Number of Entries  
# = Printer Stream  
#B = Cassette Stream

```

1570 REM *****
1580 REM * 4. Delete Name & Address *
1590 REM *****
1600 REM
1610 CLS:PRINT* DELETE NAME & ADDRESS *
1620 PRINT
1630 IF C=0 THEN PRINT"List Empty...":FO
R T=0 TO 1200:NEXT T:RETURN
1640 PRINT* Enter Name to be Deleted fr
om List exactly as stored. *:PRINT
1650 GOSUB 1100: REM KEYBOARD ROUTINE
1660 SP=PS
1670 C=I: REM SET COUNTER
1680 IF N$(C)=E$ THEN PRINT:PRINT S$:" N
OT ON FILE":FOR T=0 TO 850:NEXT T:RETURN
1690 C=C+1:GOTO 1670
1700 N$(C)=N$(C+1):A1$(C)=A1$(C+1):A2$(C
)=A2$(C+1):A3$(C)=A3$(C+1)
1710 A4$(C)=A4$(C+1)
1720 C=C+1:IF C=M THEN CLS:PRINT:PRINT S
$:" Deleted.":FOR T=0 TO 850:NEXT T:RETURN
1730 GOTO 1700
1740 REM
1750 REM *****
1760 REM * 5. Search Routine *
1770 REM *****
1780 REM
1790 CLS
1800 PRINT* SEARCH ROUTINE *:PRINT
1810 IF C=0 THEN PRINT"List Empty...":FO
R T=0 TO 1200:NEXT T:RETURN
1820 C=I: REM SET COUNTER
1830 PRINT:PRINT"Enter Name... ":
1840 GOSUB 1100
1850 SP=PS
1860 L=LLEN(SP$)
1870 IF N$(C)=E$ THEN RETURN
1880 FOR K=1 TO LEN(N$(C))-L+1
1890 IF SP$(N$(C),K,L) THEN PRINT 1920
1900 NEXT K
1910 C=C+1: GOTO 1870
1920 CLS
1930 PRINT:PRINT"Name ";N$(C)
1940 PRINT:PRINT"Address ";A1$(C)
1950 PRINT " ";A2$(C)
1960 PRINT " ";A3$(C)
1970 PRINT " ";A4$(C)
1980 PRINT:PRINT:PRINT" Press 'P' for P
rintout *
1990 PRINT:PRINT" Press 'M' for Menu *
2000 LOCATE 1,25:PRINT"Press Space Bar t
o continue search..."
2010 AS=INKEY$:IF AS="" THEN 2010
2020 IF AS="P" THEN GOSUB 2040
2030 IF AS="M" THEN RETURN
2040 IF AS="" THEN C=C+1:GOTO 1870
2050 GOTO 2010
2060 PRINT #B, N$(C)
2070 PRINT #B,A1$(C)
2080 PRINT #B,A2$(C)
2090 PRINT #B,A3$(C)
2100 PRINT #B,A4$(C)
2110 RETURN
2120 REM
2130 REM *****
2140 REM * 6. Printer Output *
2150 REM *****
2160 REM
2170 CLS:PRINT* PRINTER OUTPUT *:PRINT
:PRINT
2180 PRINT:PRINT" 0. Instructions...":PRI
NT
2190 PRINT:PRINT" 1. Output Address List
...":PRINT
2200 PRINT:PRINT" 2. Output to Labels..."
:PRINT
2210 PRINT:PRINT" 3. Return to Menu...":P
RINT
2220 PRINT
2230 PRINT:PRINT"Select Option..."
2240 AS=INKEY$:IF AS="" THEN 2240
2250 IF ASC(AS)<48 OR ASC(AS)>51 THEN 21
70
2260 OPT=ASC(AS)-47
2270 ON OPT GOSUB 2290,2840,2960
2280 RETURN
2290 REM
2300 REM *****
2310 REM * 7. Save List *
2320 REM *****
2330 REM
2340 CLS:PRINT* CASSETTE SAVE LIST
ROUTINE *:PRINT
2350 PRINT:PRINT"ARE YOU SURE...: (Y/N)"
2360 AS=INKEY$:IF AS="" THEN 2360
2370 IF AS="Y" THEN 160
2380 IF AS(">Y") THEN 2360
2390 PRINT:PRINT"Enter new Filename plea
se..."
2400 GOSUB 1100: REM KEYBOARD ROUTINE
2410 B$=CHR$(34)+P$+CHR$(34): REM SET "F
ilename"
2420 IF P$="" THEN B$=""
2430 C=I:OPENOUT B$
2440 IF N$(C)=E$ THEN CLOSEOUT: RETURN
2450 WRITE #V,N$(C),A1$(C),A2$(C),A3$(C)
,A4$(C): REM OUTPUT DATA
2460 C=C+1:GOTO 2440
2470 REM
2480 REM *****
2490 REM * 8. Load List *
2500 REM *****
2510 REM
2520 CLS:PRINT* CASSETTE LOAD LIST
ROUTINE *:PRINT
2530 PRINT:PRINT"ARE YOU SURE...: (Y/N)"
2540 AS=INKEY$:IF AS="" THEN 2540
2550 IF AS="Y" THEN 160
2560 IF AS(">Y") THEN 2540
2570 PRINT:PRINT"Enter Filename of List
Please..."
2580 GOSUB 1100: REM KEYBOARD ROUTINE
2590 B$=CHR$(34)+P$+CHR$(34): REM SET "F
ilename"
2600 IF P$="" THEN B$=""
2610 C=I:OPENIN B$
2620 WHILE NOT EOF: REM FOR LOOP UNTIL DONE
2630 INPUT #V,N$(C),A1$(C),A2$(C),A3$(C)
,A4$(C): REM GET DATA

```

# Programming: Amstrad

```

2640 C=C+1:GOTO 2620
2650 MEND
2660 CLOSEIN
2670 N$(C)=E$:RETURN: REM CLOSE UP AND G
O HOME
2680 REM
2690 REM *****
2700 REM * End Program *
2710 REM *****
2720 REM
2730 CLS:PRINT** END PROGRAM **:PRINT
2740 MODE 1:PRINT:PRINT**WARNING*****
"
2750 PRINT:PRINT** IS ALL YOUR DATA SAVED
. ? (Y/N) "
2760 AS=INKEY$:IF AS="" THEN 2760
2770 IF AS="N" THEN RETURN
2780 IF AS="Y" THEN END: REM GOOD BYE...
2790 REM
2800 REM *****
2810 REM * Output Address List *
2820 REM *****
2830 REM
2840 CLS:PRINT** OUTPUT ADDRESS LI
ST **:PRINT
2850 IF C=0 THEN PRINT**List Empty...*:IFD
R T=0 TO 1200:NEXT T:RETURN
2860 PRINT "Set Printer to Top of Paper"
:PRINT
2870 LOCATE 3,25:PRINT**Press Space Bar t
o continue...
2880 AS=INKEY$:IF AS="" THEN 2880
2890 IF AS="" THEN 2880

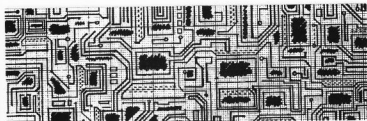
```

```

2900 C=1
2910 IF N$(C)=E$ THEN PRINT #0,"Total:-
":C=1:PRINT #0,CHR$(27)CHR$(12):RETURN
2920 PRINT #0, N$(C): "A1$(C): "A2
$(C): "A3$(C): "A4$(C)
2930 C=C+1:GOTO 2910
2940 REM
2950 REM *****
2960 REM * Output to Labels *
2970 REM *****
2980 REM
2990 CLS:PRINT:PRINT** OUTPUT TO LABELS
**::PRINT
3000 IF C=0 THEN PRINT**List Empty...*:IFD
R T=0 TO 1200:NEXT T:RETURN
3010 PRINT "Set Printer to Top of Label"
:PRINT
3020 LOCATE 3,25:PRINT**Press Space Bar t
o continue...
3030 AS=INKEY$:IF AS="" THEN 3030
3040 IF AS="" THEN 3030
3050 C=1: REM SET COUNTER
3060 IF N$(C)=E$ THEN RETURN
3070 PRINT #0,N$(C)
3080 PRINT #0,A1$(C)
3090 PRINT #0,A2$(C)
3100 PRINT #0,A3$(C)
3110 PRINT #0,A4$(C)
3120 FOR SP=1 TO 3:PRINT #0, CHR$(13):LINE
XT SP: REM SET SP: COUNT FOR SPACE BETWE
N LABELS
3130 C=C+1:GOTO 3060

```

# Programming: C64



# PROTECTOR

by David Shaw

**M**y Protector program for the CBM 64 addresses the less publicised but still important area of the piracy of programming methods.

While Protector does not provide protection from copying, it completely hides any Basic or Basic and machine code program, producing a version that will list simply as one SYS call.

To reveal the actual program is probably impossible without a reasonable knowledge of machine code and how Basic is stored in memory. Despite listing as one SYS call, the program can be run and saved as normal once protected.

To further increase the usefulness of the program I have included run/stop-restore and hardware reset switch protection (the reset protection is only present for programs under 32K long). Once run the program is almost unstoppable and when used in conjunction with one of the many published auto-run routines, protection of commercial quality can be achieved.

To protect a program use the following steps.

- 1) Type in or load up a saved copy of the PROTECTOR listing and RUN it.
- 2) Type in or load the program.
- 3) Add the following two lines to the program (they must be line numbers zero and one and must contain no spaces). It is vital

that line one contains 67 asterisks, so count carefully or the routine will not work.

0 SYS2063

1\*\*\*\* etc, up to 67 asterisks

- 4) Enter Sys49152 in direct mode to execute the protection routine and a message

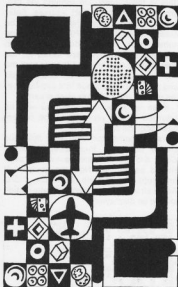
will appear telling you the program is now fully protected.

It is advisable to save the protected program at this point because once run you will be unable to break out of the program.

```

10 REM * * * * *PROTECTOR* * * * *
20 REM * DAVID SHAW *
30 REM * * * * *BIOKINGHAM* * * * *
40 FORT=870194:READA:CS=CS+R:POKE49152+T,R:NEXT
50 IFCS<19014THENPRINT"DATA ERROR":END
100 DATA162.0,189.35,192.232,157.14,8
101 DATA224.67,208.245,169.0,141.11,8
102 DATA141.12,8.162,0.189,102.192,32
103 DATA210.255,232,224.93,208.245,96
104 DATA164.46,192,128.16,35.169,195,141
105 DATA4.128,169,194,141.5,128,169,205
106 DATA141.6,128,169,56,141.7,128,169
107 DATA46,141.8,128,169,70,141.0,128
108 DATA169.0,141.1,128,169,193,141.24
109 DATA3.169,254,141.25,3.169,83,133
110 DATA3.169,234,141.40,3.32,89,166
111 DATA76,174,167.0,32,84,72,69,32,80
112 DATA82,79,71,82,65,77,32,73,83,32
113 DATA78,79,87,32,70,85,76,76,89,32
114 DATA80,82,79,84,69,67,84,69,68,33
115 DATA33,32,32,32,84,82,89,32,76,73
116 DATA83,84,46,83,65,86,69,32,65,78
117 DATA68,32,82,85,78,32,84,72,69,32
118 DATA80,82,79,84,69,67,84,69,68,32
119 DATA80,82,79,71,82,65,77,32,65,83
120 DATA32,85,83,85,65,76,46
130 NEW

```



## SLOW DOWN

by D Bridge

**R**isking being described perverse, this routine is designed to slow the QL. The impetus for writing it came from the purchase of additional memory, which I was pleased to find speeded the QL by some 20%, but in doing so moved some arcade games out of the category of "challenging" and into that of "too (blast-ed) difficult".

Software techniques for slowing a micro usually rely on introducing delays in the interrupt service routines. However, for multitasking machines another method may be used, that of creating an independent job able to adjust its own priority to "steal" processor time from all other jobs (and therefore to slow them).

The routine examines either the F5 or 'I' key and when pressed, cycles through eight different preset priorities, issuing a beep or pitch related to that priority - a low

pitch corresponding to the routine itself having a high priority and therefore to all other tasks running slowly.

The range of speeds achieved (and keyboard response) will depend on the priorities and status of the other jobs, but assuming a single other (activated and not awaiting input) at its default priority of 32 (which is usually appropriate), then the new QL speeds are approximately: 97%, 88%, 80%, 70%, 60%, 50%, 40% and 25%.

Although not impossible to disable, the routine works on all of the games software I own (as well as basic and utilities!). When done: the routine should be Execed.

Once any program is Execed (ie, the transient program area is no longer empty), then the resident procedure area can not be expanded. Therefore you must Exec the routine *after* any required *Respres* have been carried out.

```

100 REMARK ***** SLOW IT *****
110 REMARK ***** D.BRIDGE *****
120 CLS:AT 2,8:PRINT "PLEASE WAIT":PRINT
130 ADDR=RESPR(200):POS=ADDR
140 LINE_NO=1000:LINE_STEP=10:FLAG=0
150 RESTORE LINE_NO
160 I=1
170 REPEAT OUTER
180 SUM=0:COUNT=0
190 REPEAT INNER
200 COUNT=COUNT+1
210 IF EOF THEN EXIT INNER
220 READ A
230 IF COUNT<11 THEN
240   FOK=POS,A:POS=POS+1:SUM=SUM+A
250 ELSE
260   IF SUM<A THEN PRINT_ERROR
270   EXIT INNER
280 END IF
290 END REPEAT INNER
300 IF EOF THEN EXIT OUTER
310 LINE_NO=LINE_NO+LINE_STEP
320 END REPEAT OUTER
330 IF (SUM-A)<0 THEN IF COUNT<>11 THEN PRINT_ERROR

340 IF NOT FLAG THEN
350   INPUT "SELECT KEY : 1='F5' 2='\'':AS
360   IF AS="2" THEN FOK=ADDR+112,1
370   PRINT "SAVING CODE"
380   SEXEC MDV2_SLOW_IT_TST ,ADDR,140,100
390 END IF
400 STOP
410 DEFINE PROCEDURE PRINT_ERROR
420 FLAG=1:PRINT "CHECKSUM ERROR AT LINE "+LINE_NO
430 END DEFINE PROCEDURE PRINT_ERROR
1000 DATA 96,12,0,0,0,0,74,251,0,4,437
1010 DATA 83,76,79,87,116,1,114,255,112,11,934
1020 DATA 78,65,67,250,0,106,124,0,71,250,1011
1030 DATA 0,76,112,17,78,65,8,1,0,5,362
1040 DATA 103,242,82,6,2,134,0,0,0,7,576
1050 DATA 71,250,0,62,23,70,0,6,82,43,607
1060 DATA 0,6,112,17,78,65,69,241,104,8,700
1070 DATA 116,0,20,18,114,255,112,11,78,65,789
1080 DATA 69,241,104,0,122,0,26,18,62,60,702
1090 DATA 1,144,78,113,81,207,255,252,81,205,1417
1100 DATA 255,244,76,0,255,180,9,1,0,0,1040
1110 DATA 0,0,0,2,10,0,0,0,170,170,360
1120 DATA 1,0,0,0,0,5,0,0,1,0,7
1130 DATA 2,35,65,95,135,142,150,200,1,4,829
1140 DATA 8,14,21,32,48,96,0,0,219
    
```

## Programming: Spectrum



## BASIC AID

by Stephen Martin

**T**his is a programming utility for the 48K ZX Spectrum which will aid Basic programmers. It will display in real time (as it happens) the following information.

(1) The most recently plotted X-

coordinate.

(2) The most recently plotted Y-coordinate.

(3) The ASCII code of the last key press, hence: Enter(13),A(65) etc.

(4) The first location of the Basic program (Prog) area.

(5) Current line number being executed. (If no program is running it will display zeros).

(6) The first location of the user definable graphics area. This is the equivalent of Print Usr "a".

# Programming: Spectrum

(7) The length of your Basic program. This is updated after a line is inserted or deleted.

(8) The free memory (Ram) remaining. The last two digits may flicker but the first three digits will always be clearly visible.

(9) The current value of *Ramtop*. This should be at least 64569.

As the Panel is interrupt driven, it will use the vector hook at \$FEFFFF0 so those programmers who use small patches of code in their Basic programs should take care where they organise their machine code. However, there is a small area between 65281 and 65367 vacant. Otherwise machine code should be placed so that it ends before 64570.

Once installed the panel can be activated by *Rand Usr 64570* and panel is switched off by *Rand Usr 64583*. In addition

to this the routine can also be used in non interrupt mode by *Rand Usr 64590* (the panel should be switched off before doing this). The routine can also be left in operation when loading a new Basic program. As the Spectrum will disable the routine, then once loading has commenced it will re-enable the panel.

Note that when editing program lines thick dotted lines may appear on the upper third of the screen below the panel. These should be removed by a CLS command. The effect of these lines is purely cosmetic and does not interfere with the operation of the foreground or background task.

Naturally before any of this happens the machine code for the utility must be entered: First *Rand Usr 0* to clear the memory. Then *Clear 64569*.

Listing 1 should now be entered and run

(this is the loader). On running the program will ask for a start address. Enter 64570 & press *Enter*. Next you will be asked the length. Enter 700. Enter the first number from the code dump, and repeat this process until you are asked for the checksum. Enter this and if all is well the next base location 64575 will be displayed and you should continue in a similar fashion until all the code has been entered.

If an error occurs then you will be returned by the program to the current base address again.

Having completed your task the code should be saved thus: *Save "INT-PAN"* Code 64570,700. Once saved the code should be verified. Now the moment of (interrupt driven) truth. *Rand Usr 64570*. And if all is well nine pieces of information should be displayed.

```
10 REM CODE LOADER
20 GOSUB 1000:PRINT "START LOCATION"
30 INPUT "START" :START
40 INPUT "LENGTH OF CODE" :LEN
50 LET LOWEND=LEN
60 FOR #=START TO (START+LEN)
70 NEXT #
80 LET #=0
90 PRINT "LEN" :#
100 PRINT "START" :START
110 LET #=0
120 FOR #=1 TO LEN
130 PRINT CODE# :#
140 LET CODE#=#
150 NEXT #
160 INPUT "CHECK NUMBER" :CHK
170 IF (CHK MOD 255) THEN PRS
180 PRINT "OK TO GO"
190 NEXT #
200 NEXT #
210 PRINT CHR (127)+CHR (214)+CHR
220 PRINT "COMPLETED"
```

## code dump

```
64570 33 78 252 34 255 : 130
64575 254 62 254 237 71 : 175
64580 237 94 254 237 69 63 : 131
64585 237 71 237 66 201 : 166
64590 229 213 197 245 1 : 177
64595 181 254 22 10 53 : 94
64600 64 34 238 254 205 : 118
64605 205 237 253 1 161 : 171
64610 64 22 10 33 93 : 70
64615 64 34 238 254 205 : 159
64620 237 253 1 171 254 : 103
64625 22 10 33 68 64 : 38
64630 64 34 238 254 205 237 : 193
64635 253 1 181 254 22 : 142
64640 10 33 12 64 34 : 30
64645 238 254 22 10 33 237 : 237
64650 1 191 254 22 10 : 95
64655 33 44 64 34 238 1 : 98
64660 254 205 237 253 1 : 190
64665 201 254 22 10 33 : 104
64670 76 64 34 238 254 211 : 133
64675 205 237 253 211 : 101
64680 64 22 9 33 23 : 60
64685 64 34 238 254 205 : 159
64690 237 253 1 220 254 : 193
64695 22 9 33 65 64 : 36
64700 64 238 254 205 237 : 193
64705 237 253 1 220 254 : 151
64710 9 33 87 64 34 : 45
64715 238 254 205 237 253 : 237
64720 237 253 1 220 254 : 151
64725 111 205 53 254 205 : 165
64730 199 253 1 146 254 : 171
64735 237 253 1 220 254 : 151
64740 64 238 254 205 237 : 193
64745 253 254 226 92 30 : 113
64750 237 253 1 220 254 : 151
64755 205 199 253 1 146 : 161
64760 254 22 9 33 40 70 : 159
64765 237 253 58 9 32 : 129
64770 38 0 111 205 53 : 61
64775 254 205 237 253 1 : 162
64780 146 254 22 3 33 : 92
64785 72 64 34 238 254 : 132
64790 205 237 253 22 63 : 164
64795 205 53 254 205 : 161
64800 199 253 1 146 254 : 170
64805 22 5 35 7 64 58 : 159
64810 64 238 254 205 237 : 193
64815 253 42 69 220 254 : 162
64820 79 92 254 205 58 : 140
64825 3 33 0 0 205 : 40
64830 53 254 205 199 253 : 192
64835 1 146 254 205 237 : 161
64840 33 49 64 34 238 : 63
```

```
64850 254 205 237 253 42 : 198
64855 123 92 205 53 254 : 145
64860 103 199 254 205 146 : 169
64865 253 22 5 33 81 : 70
64870 64 34 238 254 205 : 159
64875 237 253 1 220 254 : 141
64880 64 93 42 78 92 : 77
64885 237 63 205 53 254 : 166
64890 205 199 253 1 146 : 160
64895 254 22 5 33 27 : 60
64900 64 34 238 254 205 : 159
64905 237 253 205 118 254 : 218
64910 205 69 33 255 255 : 142
64915 253 63 205 53 254 : 166
64920 205 199 253 1 146 : 160
64925 254 22 5 33 55 : 74
64930 64 34 238 254 205 : 159
64935 237 253 42 178 92 : 169
64940 205 53 254 205 199 : 163
64945 253 1 146 254 22 : 135
64950 33 91 64 34 : 45
64955 238 254 205 237 253 : 237
64960 241 193 209 225 195 : 212
64965 56 0 30 48 58 : 38
64970 146 254 131 60 16 : 145
64975 254 55 147 254 131 : 168
64980 50 147 254 58 146 : 131
64985 254 131 50 140 28 : 175
64990 255 140 254 131 50 : 128
64995 149 254 58 150 254 : 173
65000 131 50 150 254 181 : 187
65005 178 245 10 345 197 : 174
65010 213 229 205 2 254 : 160
65015 228 209 253 1 146 : 174
65020 31 241 156 32 337 : 143
65025 201 111 38 0 41 : 78
65030 41 14 17 8 68 31 : 169
65035 205 237 21 82 63 : 89
65040 6 6 126 10 35 : 58
65045 28 18 250 122 : 64
65050 15 15 6 230 3 : 64
65055 246 88 87 33 71 : 105
65060 0 86 173 164 173 : 107
65065 18 33 33 34 42 : 119
65070 102 35 126 198 8 : 111
65075 111 205 237 175 17 : 105
65080 254 205 237 253 1 : 190
65085 251 25 61 50 146 : 95
65090 254 178 17 232 3 : 136
65095 254 205 237 253 1 : 190
65100 25 61 50 147 254 : 107
65105 175 37 108 0 237 : 165
65110 25 44 253 25 44 253 : 93
65115 61 50 146 254 175 : 137
65120 17 10 0 237 82 : 89
65125 0 89 253 25 44 253 : 93
65130 50 149 254 175 125 : 150
65135 50 158 254 201 1 : 131
65140 0 89 0 89 0 89 : 116
65145 68 77 201 42 101 : 97
65150 92 9 218 146 254 : 143
65155 33 33 33 25 74 : 105
65160 218 142 254 237 114 : 193
65165 216 33 0 0 201 : 90
65170 64 34 238 254 205 : 159
65175 68 45 99 111 114 : 91
65180 198 58 33 32 32 : 50
65185 69 45 99 111 114 : 91
65190 100 58 32 32 32 : 50
65195 76 97 111 110 45 : 69
65200 100 114 111 105 58 : 93
65205 32 32 32 32 32 : 92
65210 76 100 58 32 32 : 90
65215 32 32 32 32 32 : 92
65220 55 190 103 115 50 : 92
65225 69 45 99 111 114 : 91
65230 76 101 110 58 32 : 76
65235 32 32 32 32 32 : 90
65240 114 101 110 58 32 : 76
65245 32 32 32 64 111 : 58
65250 110 50 39 58 32 : 53
65255 62 32 62 62 62 : 53
65260 0 0 0 0 0 : 0
```





# Programming: BBC

```

1770 DATA"MI\NOSHIMI\A"
1780 DATA"TPQKLPQRJLQKLY"
1790 DATA"BBBBBEFACDBBBB"
1800 DATA"BBBEFSTYACDBBB"
1810 DATA"DBBUVCDEFAXWBBE"
1820 DATA"MNDEFXWUWACDGH"
1830 DATA"FOR"MNOSHAAJL"
1840 DATA"GHISTPQRJLYZ"NO"
1850 DATA"JKLBBBBUWBBBFPQR"
1860 DATA"ZCDEDBBBBDEFBS"
1870 DATA"BYZSWBBBBBUZSTB"
1880 DATA"BBBBBBBBBBBBBBB"
1890 DATA822,1
1900 DATA"STUVSTUVCDEFXYZ"
1910 DATA"CDDBBBBZYSTBBEF"
1920 DATA"XWBBEFCDBBBEF"S"
1930 DATA"CDGHI"XZCDEF"STB"
1940 DATA"YZJICFAXTUVCDB"
1950 DATA"EFJLKYLVNOBBUVC"
1960 DATA"STYZCDBBFPQRCDDBY"
1970 DATA"CEFA"NOEF"ANOE"
1980 DATA"XWUV"JR"JR"
1990 DATA"BBBFPQR"STPQR"S"

2000 DATA"BBEDEF"SVCDDBBUVC"
2010 DATA"GHIXTUVCFXZCDBBY"
2020 DATA"JKLBBGH"CFANOE"
2030 DATA"ACDEFJKLUZSWPQR"
2040 DATA"YWYVACDBBBBBSV"
2050 DATA"EDBBUZXWBBBUVC"
2060 DATA"ACDEFCDDBBBEFA"
2070 DATA"SWYZ"ANOGHI"XT"
2080 DATA"BBBBBUV"JRJCICD"
2090 DATA"BHNDDBFPQR"AJICVA"
2100 DATA"JLJNDBBUVAACDGH"
2110 DATA"AJJ"JRCDBH"XWBBE"
2120 DATA"XWQR"AAJLBBEF"
2130 DATA"CDDBBUVAACDGH"
2140 DATA"YZCDBBYZAAJLKY"
2150 DATA"EFXWBBEFAAXWBBE"
2160 DATA"STBBEF"XWBBE"ST"
2170 DATA"BBBBBUV"CDDBBUVC"
2180 DATA"EFCDDBBUVXWBBBDEF"
2190 DATA"STYZCDBBBBDEFCDY"
2200 DATA"BBEFXWBBBUVAACST"
2210 DATA"EFSTBBBBBBBZYCD"
2220 DATA0,0

1230 DATA448,5
1240 DATA"STUV"CDGHNGHNOB"
1250 DATA"CDGHI"AAJJCICJC"
1260 DATA"AAJJCIAAJJRJR"
1270 DATA"AAAJCVA"AAJR"AA"
1280 DATA"MYZAJCVA"AA"AA"
1290 DATA"DEFAAJCVA"AA"MJ"
1300 DATA"AA"AAJJCVA"AA"JM"
1310 DATA"AA"SWYZAJKLZYJR"
1320 DATA"AMNOGHVACDBBFPQR"
1330 DATA"WPQRJLYZ"NOEFST"
1340 DATA"DGHIACDBBFPQR"MMO"
1350 DATA"AJJCVAACDEF"JM"JM"
1360 DATA"YZJLYWYZ"JM"JM"
1370 DATA"GHVCDDBBUTPQJ"JM"
1380 DATA"CAACFCDBBDEFPQ"
1390 DATA"CKLYZ"ACFC"NOP"
1400 DATA"KLBBEF"AAA"JM"JM"
1410 DATA"EEDEF"STYXTPQJ"JM"
1420 DATA"XTUVCDEFCDDBBFPQR"
1430 DATA"TBGGH"AA"ANOEFS"
1440 DATA"BGHC"VSV"JR"JR"
1450 DATA"HC"CKLBBFPQR"SW"
1460 DATA"CKLEDEDEF"STBB"
1470 DATA"KLEF"AA"CDDB"
1480 DATA"LGHISTYVA"SVANOE"
1490 DATA"FKJLBBBBBYVCF"JR"
1500 DATA"ACDEFCDGH"MMJR"
1510 DATA"UZAA"AAJLQPR"S"
1520 DATA"EFAASTYZ"NOEF"CA"
1530 DATA"ANNOBBFPQR"STY"
1540 DATA"JM"JM"NOEF"SV"CD"
1550 DATA"JM"JM"JR"CF"AC"
1560 DATA472,2
1570 DATA"STUVSTUV"CDDBB"
1580 DATA"CDDBBBGHI"ACDDB"
1590 DATA"XWBBEFCIAAAC"
1600 DATA"CDGHI"AJKLZYAAA"
1610 DATA"UZAJKLZACDBBYZ"
1620 DATA"EFACDBBYZACDBBY"
1630 DATA"SWYZ"NOEFAXWBBE"
1640 DATA"MNDBBFPQR"NOEF"
1650 DATA"PORCDEF"MMJR"MM"
1660 DATA"GHIAA"MMJR"MM"
1670 DATA"JICVA"STPQR"STPQR"
1680 DATA"AJJCVA"CDDBBUVCDBB"
1690 DATA"AAJJCIXWBBE"XWBB"
1700 DATA"YZAJKLBBBBBUVCDEF"
1710 DATA"BBYZCDEFCDDBBYZ"
1720 DATA"CEFAA"XWBBBUVC"

1730 DATA"AA"SWYVMNOBBBDEF"
1740 DATA"YZ"CDDBFPQJNOEF"S"
1750 DATA"EF"XZCDBBFPQR"STB"
1760 DATA"CFACACDBBUVCDB"
1770 DATA"STYVAAXZCDBH"VAC"
1780 DATA"TBBBBYZCFAAJCVA"
1790 DATA"BBBBBDBBYVAAAJJLY"
1800 DATA"DGHIACDGHVAA"NOE"
1810 DATA"AJJCVA"AAJJCVA"JR"
1820 DATA"AAJJCVAJLQPR"
1830 DATA"AAJLZYACDGH"
1840 DATA"VACDDBBYZAJKLZY"
1850 DATA"KLZYACDGHVACDEF"
1860 DATA"BBBBBYZAC"VAA"
1870 DATA"BBBBBFC"VAA"
1880 DATA"BBEF"VAA"VAA"
1890 DATA592,1
1900 DATA"AA"STUVA"AA"
1910 DATA"YZ"STBBEFA"AA"
1920 DATA"EFMNDEF"AA"AA"
1930 DATA"MMJRSTUVA"STUZA"
1940 DATA"MMJR"DEF"NOBBBYV"
1950 DATA"POR"AASTPQRCDDB"
1960 DATA"GH"XWBBE"ANOE"
1970 DATA"JKLUVCDBBUVSWPQR"
1980 DATA"NOEFA"NOEFCDBBU"
1990 DATA"POR"JR"ANOE"
2000 DATA"BBUVMJR"JR"
2010 DATA"CDDBBFPQR"MMJR"AA"
2020 DATA"YZCDEF"STPQRSTY"
2030 DATA"EFXWUVSTBBEF"CDE"
2040 DATA"STBBBBBBBDEFSTUZA"
2050 DATA"BBBBBBBUVCDEFA"
2060 DATA"BBBBBBBEEFA"AA"
2070 DATA"BBEFCDGH"AA"XT"
2080 DATA"BBUVAJLZY"CD"
2090 DATA"BBEFA"XWBBBYV"AA"
2100 DATA"EF"SWBBEFCDBBUZA"
2110 DATA"STBBBUVXWBBEFA"
2120 DATA"TBBEFCDBBBB"AA"
2130 DATA"DBBUVXWBBE"AA"
2140 DATA"ZCDBBBB"AA"
2150 DATA"FXWBBE"STUV"X"
2160 DATA"CDDBBUVSTBBBUTB"
2170 DATA"UZACDDBBDEFCDDBB"
2180 DATA"BBYZACDEF"XWBBE"
2190 DATA"BBGHVAA"STBBE"
2200 DATA"GH"VASTBBBUV"
2210 DATA"VAA"VAA"VAA"
2220 DATA0,0

```

## Programming: Bytes & Pieces

## Circle Graphics on MSX

by Charles Bajada

I still cannot understand the lack of articles on MSX, considering the fact that many are now realising that this is a system with great potential. I hope this program will encourage MSX users to write routines of their own.

The routine opposite is a graphic demonstration called 'Circle Graphics'. This makes use of the excellent circle command, showing some of the great potential of the MSX. A series of circle are drawn in various configurations around the screen, producing some pleasing patterns.

The program can be easily altered by the user to create endless variations.

```

10 COLOR = 3
20 FOR C=2 TO 20:COLOR C
30 SCREEN 7
40 CLS:FOR I=0 TO 100:CIRCLE(121,95),I,1/20,I/2
50 NEXT I
60 FOR X=0 TO 500:NEXT X
60 CLS:FOR I=0 TO 150:CIRCLE(121,95),I/2,1.5,0
70 NEXT I
70 FOR X=0 TO 500:NEXT X
80 CLS:FOR I=0 TO 31497:PI/2=CIRCLE(150,125)+4+I
90 NEXT I
100 CLS:FOR I=0 TO 10230:PI/2=CIRCLE(180,15),SIN(I/2)+10
110 FOR X=0 TO 500:NEXT X
120 CLS:FOR I=0 TO 31618:PI/2=CIRCLE(12,163),SIN(I/2)+10
130,2,0,NEXT I
140 FOR X=0 TO 500:NEXT X
150 CLS:FOR I=0 TO 100:PI/2=CIRCLE(ABS(140-I)+50,SIN(
150 I/2)+20,PI/2,NEXT I
160 FOR X=0 TO 500:NEXT X
170 CLS:FOR I=0 TO 100:PI/2=CIRCLE(12,I),TAN(I/
70/18,1/50,0,NEXT I
170 FOR X=0 TO 500:NEXT X
180 CLS:FOR I=0 TO 90:PI/CIRCLE(121,95),I,1/50,I/2
50 NEXT I
190 FOR X=0 TO 500:NEXT X
200 CLS:PI=ATAN(1):FOR I TO 70:PI STEP .1:CIRCLE
130,95,PI/50,45,2,1,NEXT I
210 FOR X=0 TO 500:NEXT X
220 NEXT C
230 GOTO 30

```

## Checkboard on Spectrum

by R G Luxton

Checkboard will instantly fill the screen with a checkboard pattern in *Bright* and *non-Bright*. A call to the same *Usr* will then clear it from the screen just as quickly.

Type in and *Run* the program. Enter as a direct command a short print command say, *Print At 10,12;"Popular"*—followed by *Enter*. Now enter *Goto g*, followed by *Enter*, and you should see Checkboard work. Again, *Goto g*, and the checkboard pattern will clear, leaving your message on the screen.

Checkboard can be used as a guide to layout on the screen, used directly or incorporated into a *Plot and Draw* program; a demonstration routine from Line 2000 shows another use. Enter *Goto 2000* and press any key during each pause.

Also, after Breaking the program, *Poke 65315* with any number from 1 to 255, followed by, *Goto g*. Leaving characters on the screen as you do so creates an interesting effect.

To use this in your own programs, delete Lines 120, 130 and from 2000 to 2050. Enter merge the program into your own or *Run it* and *Save* with *Code 65304,64*. You should add *Clear 65303* when reloading it, and enter *Randomize Usr 65304* to call or clear the checkbox effect. The program is relocatable.

```

100 CLEAR 65303
110 FOR i=65304 TO 65367: READ a: POKE
i,a: NEXT i
120 LET g=130: STOP
130 RANDOMIZE USR 65304
1900 DATA 33,0,88,1,96,1,30,32,22,16,62,
64,174,119,35,35,21,40,10,29
1010 DATA 40,12,11,120,177,32,239,43,201
,35,22,16,24,241,43,43,30,32,24,238,43,4
5
1020 DATA 101,51,88,39,237,16,13,0,9,0,1
33,28,16,28,82,27,118,27,3,19,0,62
1030 STOP
2000 BORDER 0
2010 FOR i=64 TO 120 STEP 8
2020 PAPER 7: CLS : POKE 65315,i
2030 PRINT AT 8,9;"P O P U L A R";AT 10,
7;"C O M P U T I N G";AT 12,9;"W E E K L
Y"
2040 RANDOMIZE USR 65304: PAUSE 0: IF IN
KEY$="s" THEN STOP
2050 PAPER 0: FOR c=1 TO 22: LET a=USR 3
280: NEXT c: NEXT i: GO TO 2010

```

## Colour on Commodore 64

by John Eden

Colour allows you to change all the letters or numbers on the screen to any colour you specify, using the form Sys 50050.0-15.

Try entering this:

```
For J = 0 to 1 Step 0: For E = 0 to 15: Sys  
50050 E:Next:Next
```

This will make all the letters on the screen flash continuously.

```
800 FORI=50050TO50083:READZ
802 POKEI,Z:C=C+Z:NEXT
805 IFCD<6247 THEN PRINT"ERROR"
807 IFCD<6247 THEN PRINT"CHECK"
808 IFCD<6247 THEN LIST 820-
810 PRINT "PROGRAM OPERATING"
815 REM TYPE "SYS 50050,COLOUR"
820 DATA 32,155,183,165,101,162
830 DATA 9,134,252,162,216,134,253
840 DATA 145,252,230,252,166,252,208
850 DATA 2,230,253,224,232,208,242
860 DATA 166,253,224,219,208,236,96
```

# Programming: Peek & Poke



## Plain sailing

Mrs CP Sargent, of Falmouth in Cornwall, writes:

**Q** Is there any software available that allows the Sinclair Spectrum to be run on the Sinclair QL?

The main reason for wanting to use the QL is the fact that the fast loading with microdrives is ideal for use on board my boat.

**A** As far as I know, there is no emulation software that allows a QL to become a Spectrum. As a technical possibility this is not too outrageous an idea since the 68000, the microprocessor in the QL, is capable of simulating the Z80, the microprocessor in the Spectrum. No doubt someone will write in saying that they have some software to do this, if so, I'll let you know.

An alternative that may sound silly is to get a Spectrum with Interface 1 and microdrives. They are still available and pretty cheaply too. However the Amstrad deal has thrown the question of Sinclair-specific peripherals into turmoil, and their future is by no means assured.

## Graphic animation

Stan Cooper, of St. Fergus in Aberdeenshire writes:

**Q** I would appreciate your comments on the suitability of equipment which will be capable of satisfying the following needs:

- 1) Building colour graphics programs to illustrate the behaviour of fluids in pipelines and vessels.
- 2) Designing simulations of industrial processes with graph-

ics and numeric information capable of interaction with the trainee.

3) Displaying video pictures of equipment and superimposing animated graphics to illustrate the interior workings.

4) Saving the results of (3) on to video tape for use when the computer is not available.

5) Creating text and graphics for class handouts. At the moment, I feel that the imminent Commodore Amiga will be a suitable machine. The new Atari 1040ST may also be a possibility.

I have decided to limit myself to a spending ceiling of £2000 excluding video camera and would appreciate your advice.

**A** Your biggest problem will be programming and presuming that you can take care of this (not that easy), both the Atari ST and the Commodore Amiga should be able to cope with your needs. The graphics capabilities of both machines are excellent with the Amiga being a little better due to its graphics chips.

If you want to produce still graphics, in colour, both machines have graphics packages to allow you to do this. When you consider what happened to the standard of similar Macintosh packages, after MacPaint, there will be some major improvements over those now available. These should allow you to produce simple moving graphics with a minimum of programming using multiple frames displayed in succession.

As far as I know, both machines will allow video pictures to be displayed along with their graphics, although the Atari ST will need a little external gadgetry to link the horizontal and vertical syncs to those of the camera. It may well be that a company will produce this (you can check this with Atari UK on 0753 33444).

Saving pictures to video tape on the Atari ST is not so simple since the machine puts out an RGB signal. However, this can be converted into a composite signal - a mixture of red, green, blue, and sync on one channel as used on most video recorders - with a simple mixer circuit, again, someone ought to come up with one of these soon. The Amiga should cause no problems since it puts out both signals.

The creation of handouts

should be pretty simple on both machines, since all you would have to do would be to draw the handout with a graphics package and then dump it to the printer. However, this would be black and white, and getting colour may well not be worth while, since colour printers are generally more expensive than their b/w counterparts and need extra software. It may well be that Commodore, which produces a colour printer for the C64, has given this capability to the Amiga.

Your project is ambitious and you would be wise to scout around the IBM and BBC cards before you definitely set your mind on the ST or Amiga. Someone, somewhere may well have anticipated your needs and have a package all set up and raring to go. The Amiga or the ST are certainly capable of doing the job but they will both probably need some additional equipment and programming before you get any results.

## Dragon printing

William Dunn of Warley, West Midlands, writes:

**Q** A short while ago I purchased from Microdeal a copy of its Telewriter which I will be using with my Dragon 32. This wordprocessor is of little use without a printer.

Could you please tell me if the Amstrad DMP 2000 is compatible with the Dragon (the DMP 2000 is my first choice as, if finances allow, I may purchase the Amstrad 6128).

If this printer will not work with the Dragon, could you advise me on a Near Letter Quality printer priced under £175 that will work on both machines. The printer will be used mainly for letter writing and, as I am shortly to be made redundant, short story writing.

**A** Both the Amstrad 6128 and the Dragon 32 have Centronics compatible printer interfaces. The only difference between them are the cables

used to connect them to the printers. However, both of these should be available from various dealers.

If you can't get hold of one, it should be easy enough to make one up. Your local Tandy dealer will carry all the bits and pieces. No soldering involved since the connectors are available in clip on form.

One thing to bear in mind about buying the DMP 2000 is that a printer is being sold in a package with the Amstrad 8256 for £458. You may be better off (if finances permit) buying the whole system in one go. The DMP 2000 is £159 and the Amstrad 6128 is £299 (green screen). This comes to, you guessed it, £458, the same as the 8256. Pick your preferred keyboard of the two and see what discounts are available before you decide simply to buy a printer for your Dragon.

## Microdrive availability

Mr R Bates, of Burton Joyce, Nottingham, writes:

**Q** Now that the QL is available cheaply, it is an attractive machine provided that the Microdrive cartridges remain in production. Can the cartridges from the ICL OnePer-Desk can be used in the QL? If so, where can they be obtained and how much do they cost?

Also, what is the order of issue of the various versions of the Rom and how can the version be determined?

**A** There are a lot of Microdrive cartridges in circulation so supplies should not be a problem for the foreseeable future. In any event, ICL will secure continuing supplies for its own use and these are perfectly useable on the QL. Transform Ltd, at 24 West Oak, Beckenham, Kent BR3 2EZ is selling QL Microdrive cartridges at £1.99 each.

As to Rom versions, you want a JM or JS and you can determine which is in your machine by entering Print Ver\$.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem **Peek It to Kenn Garroch** and every week he will **Poke** back as many answers as he can. The address is **Peek & Poke, PCW, 12-13 Little Newport Street, London WC2R 3LD**

# T H S A G A

If you want the best from your Spectrum ensuring it advances with technology, then Saga Systems have the ideal keyboard for you. Look at the choices available.



## S O F T W A R E

### T · H · E L A S T W O R D

With a database and spreadsheet to follow soon, when it comes to word processors we have The Last Word.

► **The Last Word** - Sinclair User Classic Award. £13.95.

## K E Y B O A R D S



► **Saga 1 Emperor** - "Good looks ... works remarkably well..." Sinclair User. £39.95.



► **Saga 3** - "The best." Chris Jenkins, Popular Computing Weekly. The Last Word available with it free. £39.95.

► **Saga 2 +** - "Well done, Saga." Sinclair User. £45.95.

► **Saga 2001**. Infra red remote transmission, out of this world. The Last Word available with it free. £119.95.

## P R I N T E R S



► **LTR1 Printer**. Letter quality printer for only £119.95.



► **The Citizen 1200 Precision dot matrix**, with 2 year warranty. "The 1200 is an excellent printer." Sinclair User. £235.00.

► **The GLP** (Great Little Printer). Dot matrix printer, 100 cps, letter quality mode. £199.95.

## P E R I P H E R A L S

► Microdrive extension cable for use with your Saga 3. £4.95.  
► Sound Boost. To put music in your ears (and television). £9.95.  
► Flexible enables you to drive 2 interfaces. £11.95.

► Dust cover. To keep your computer and Saga keyboard clean. £4.95.  
► Centronics interface. To drive your printer. £34.95.

SEND OFF NOW FOR FULL CATALOGUE

Saga Systems Ltd.  
2 Eve Road  
Woking  
Surrey  
GU21 4JT 04862 22977

## SOFTWARE DISCOUNTS

| SPECTRUM 64K | OUR PRICE | SPECTRUM | OUR PRICE | COMMODORE | OUR PRICE |
|--------------|-----------|----------|-----------|-----------|-----------|
| Bomb Jack    | 5.95      | 2.0      | 5.95      | Blaster   | 6.95      |
| Brainworks   | 5.95      | 2.0      | 5.95      | Styler    | 6.95      |
| Zoids        | 6.95      | 2.0      | 6.95      | Falright  | 6.79      |
| Sortin' It   | 7.95      | 2.0      | 7.95      | Zoids     | 6.79      |
| Play Ping    | 6.49      | 2.0      | 6.49      | Sam Fox   | 6.95      |
| Twister      | 4.99      | 2.0      | 4.99      | Sam Fox   | 6.95      |
| Rambo        | 3.29      | 2.0      | 3.29      | Sam Fox   | 6.95      |
| Winter Games | 4.99      | 2.0      | 4.99      | Sam Fox   | 6.95      |
| Conrad Games | 3.99      | 2.0      | 3.99      | Sam Fox   | 6.95      |
| Balman       | 3.99      | 2.0      | 3.99      | Sam Fox   | 6.95      |
| Blaster      | 3.99      | 2.0      | 3.99      | Sam Fox   | 6.95      |
| Core         | 6.79      | 2.0      | 6.79      | Sam Fox   | 6.95      |
| Supercool    | 6.79      | 2.0      | 6.79      | Sam Fox   | 6.95      |
| Elite        | 6.49      | 2.0      | 6.49      | Sam Fox   | 6.95      |
| Qualitator   | 6.49      | 2.0      | 6.49      | Sam Fox   | 6.95      |
| Mov          | 9.99      | 2.0      | 9.99      | Sam Fox   | 6.95      |

Prices include fast delivery. Free bonus gift with each order. Orders over £50 please deduct further 5%.  
Cheques/POs to: SOFTWARE DISCOUNTS, PO BOX 65, NOTTINGHAM NG1.  
Telephone (0602) 470897

ZPT006

## SUPASOFT COMPUTER SOFTWARE



|                  |      |      |      |                   |       |      |                   |       |      |                   |       |
|------------------|------|------|------|-------------------|-------|------|-------------------|-------|------|-------------------|-------|
| SPECTRUM         | 64K  | 2.0  | 6.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Green Street     | 7.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Supercool        | 6.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| V                | 7.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| North Jack       | 7.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Salt Fish        | 8.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Star Trek        | 7.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Alan Hargreaves  | 7.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Colony           | 6.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Sortin' It       | 7.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Ball Blaster     | 7.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| The Robots       | 9.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Back To Future   | 7.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Crash Demolition | 9.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Red Tonic        | 9.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Balman           | 7.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Reggie           | 6.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Henry in Magic   | 9.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |
| Changer          | 7.95 | 5.25 | 5.25 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 | 9.95 | Ball Construction | 12.95 |

Post & Packing Inc. Overseas Orders Please Add 75p per line. Mail Order Only.

Cheques/Paid Orders (Starting any amount) Made Payable to:

DISCOUNT SOFTWARE, Dept 4, 210 Nicholas Tower, Harlow, Essex CM10 9EF.

PH14A

## C & F ASSOCIATES

| BBC CASSETTE         | RRP   | OUR PRICE | RRP                  | OUR PRICE |       |
|----------------------|-------|-----------|----------------------|-----------|-------|
| COMMANDO             | 9.95  | 7.50      | POWERPLAY            | 14.95     | 12.95 |
| COMBAT BATTLEZONES   | 9.95  | 7.50      | SPEECH               | 11.95     | 10.95 |
| MOON CRESTA          | 7.95  | 6.50      | CITADEL              | 11.95     | 10.95 |
| KARATE COMBAT        | 6.95  | 6.50      | STRIKE FORCE HARRIER | 12.95     | 10.95 |
| BRUCE LEE            | 6.95  | 6.50      | KARATE COMBAT        | 11.95     | 10.95 |
| WINTER OLYMPICS      | 7.95  | 6.50      | STEVE DAVIS SNOOKER  | 12.95     | 10.95 |
| EXPLODING FIST       | 9.95  | 7.50      | THE HOBBIT           | 17.95     | 15.95 |
| YIE AR KUNG FU       | 6.95  | 6.50      | DAMBUSTERS           | 14.95     | 12.95 |
| STEVE DAVIS SNOOKER  | 9.95  | 7.50      | ELECTION             | 9.95      | 7.50  |
| BRUCE LEE            | 9.95  | 7.50      | COMMANDO             | 9.95      | 7.50  |
| PROJECT THESURUS     | 9.95  | 7.50      | CITADEL              | 9.95      | 7.50  |
| SPEECH               | 7.95  | 6.50      | YIE AR KUNG FU       | 9.95      | 7.50  |
| CITADEL              | 9.95  | 7.50      | THAI BOXING          | 9.95      | 7.50  |
| REPTON 2             | 7.95  | 6.50      | WINTER OLYMPICS      | 9.95      | 7.50  |
| CITIZEN BELL         | 9.95  | 7.50      | COMPUTER HITS 1101 2 | 9.95      | 7.50  |
| COMPUTER HITS 1101 2 | 9.95  | 7.50      | SOUTHERN BELLE       | 9.95      | 7.50  |
| JUMP JET             | 9.95  | 7.50      | JUMP JET             | 9.95      | 7.50  |
| BBC DISC             | 14.95 | 12.95     | BIG EYES 2           | 7.95      | 6.95  |
| BRUCE LEE            | 16.95 | 14.95     | KARATE COMBAT        | 6.95      | 6.50  |
| MINI OFFICE 2        | 11.95 | 10.45     | EXPLODING FIST       | 9.95      | 7.50  |
| ENTHAR               | 11.95 | 10.45     | REPTON 2             | 9.95      | 7.50  |
| ROCK HANSON          | 11.95 | 10.45     | JET SET WOLLY        | 9.95      | 7.50  |
| PROJECT THESURUS     | 12.95 | 10.95     | THE QUIRL            | 16.95     | 14.95 |
| HYPER SPORTS         | 14.95 | 12.95     | FLIGHT PATH 737      | 9.95      | 4.95  |
| YIE AR KUNG FU       | 9.95  | 7.50      | FOOTBALL MANAGER     | 9.95      | 6.95  |
| EXPLODING FIST       | 9.95  | 7.50      |                      |           |       |
| OLYMPIC DELTALION    |       |           |                      |           |       |

ALL PRICES INCLUDE VAT AND POSTAGE & PACKING (Overseas Orders add £1.00 per item)  
C & F ASSOCIATES (PCW), PO BOX 2, BIDEFORE EX39 3RE  
Telephone: (023 73) 618

ALL PRICES INCLUDE VAT AND POSTAGE & PACKING (Overseas Orders add £1.00 per item).

CHEQUES/PAYABLE TO: C & F ASSOCIATES AND SEND TO:

C & F ASSOCIATES (PCW), PO BOX 2, BIDEFORD EX36 3RE

Telephone: (023 73) 619

PCW40

## MIKES COMPUTER STORE

292 London Road, Westcliff-on-Sea, Essex.  
Tel: Southend (0702) 332554

|                      |      |                             |      |
|----------------------|------|-----------------------------|------|
| 1040 STF             | £919 | 130XE                       | £129 |
| 520 STM              | £399 | 130XE/XCII Recorder         | £185 |
| 520 STM +            |      | 130XE/1050 Disc             | £259 |
| (1meg 520 STM)       | £499 | XCII Recorder               | £34  |
| SF 354 Floppy        | £149 | 1029 Printer                | £119 |
| SF 314 Floppy        | £199 | 1050 Disc Drive             | £129 |
| SM 204               | £849 | Tough Tablet                | £29  |
| SM 124 Mono Monitor  | £149 | Epson LX80 + Tract.         | £275 |
| SC142 Colour Monitor | £399 | Philips 8533 Colour Monitor | £317 |

ALL PRICES INCLUDE VAT AND DELIVERY

AUTHORISED DEALER





## Control of the Galaxy

Julian Rosen gives a brief summary of the wide variety of facilities provided by Micronet 800, the database for home computer enthusiasts on Prestel

**M**icronet 800 is probably one of the best known of all bulletin board style databases; with around 20,000 subscribers, it is the largest single area on Prestel.

Although many of you will at least know of Micronet, if not subscribe to it, it is worth looking at what Micronet has to offer – it's not all chatlines and telesoftware.

Micronet 800, so called because it resides on page 800 of Prestel, first came into being in 1983. Initially, it was centred mainly around the BBC micro, but now it offers services and information useful and relevant to all computer users. However, those people owning BBC's, Commodores, Spectrums, Apples, and Amstrads will benefit especially, because Micronet offers special microbases for these machines.

These microbases offer a large range of services, including hints and tips for games, special offers on software and hardware, some telesoftware (programs you can download from Micronet, save to disc or tape, and use later), and news relevant to its readers.

Of course, these microbases are not all that the 'Net' has to offer. On the communications side, Micronet offers an instant electronic mail service. So long as you know the numeric address of the person you wish to send a letter to (normally their telephone number, unless they have asked to be kept ex-directory), you can type a page of text and send it at the touch

of a button. All you have to do to communicate is to type in your message, and hit the magic button.

A few seconds later, that message will be displayed for all other chatline users to read.

There are quite a few different types of chatline. DaisyChat archives up to 100 messages, so you can read up on a conversation before joining it. Quickchat is an 'update-and-destroy' chatline. The incoming message wipes out the previous message, so conversation is purely real-time; you can't read through earlier conversations.

TurboChat is the newest addition. As with DaisyChat, up to 100 messages can be archived. Further messages can be sent for 2p, which is the same charge Micronet make for sending a DaisyChat frame. However, TurboChat allows several messages to appear on the screen at the same time, with the latest one highlighted. This obviously makes conversations much easier to follow, and you can talk to several people at once without becoming (too!) confused. At present, there is only one TurboChat, whereas there are seven different Quickchats devoted to different subjects such as music, adventuring, as well as computing in general.

However, Micronet says that if response is good enough, they will open more, including one for its Multi User Game (MUG), *Starnet*.

*Starnet* allows 500 people to participate in an attempt to conquer the galaxy, which consists of over 3000 stars. *Starnet* is computer moderated, and for each move, players mailbox the computer with their moves. The results of these moves, battle reports, and obituaries, are published the next day.

The *Starnet* Chatline (soon hopefully to be a TurboChatline), is where alliances with other starship captains are made, and also where devious plots at coups are planned. What makes *Starnet* fun is that players can co-operate with each other in attempting to kill off a particular starship captain, or succeed in capturing a star. There is true interaction, whether it be violent or peaceful, and this is what makes the game such fun to play.

The original *Starnet* was written by Mike Singleton, who also wrote the much acclaimed *Lords of Midnight*, but was found to be so difficult to administer that it was shelved until Lawrence Kirby came along and re-wrote it, which explains the considerable delays Micronet experienced in getting the game up and running.

The aim of the game is to establish yourself as emperor over the galaxy, and this position you must try to maintain as long as possible before you are finally overthrown. *Starnet*'s first emperor was Tim Ridge, alias Jemal to those who knew him in the game.

For his successful efforts, he was awarded £150 by Micronet. Please note that this was a one-off prize, and will not be repeated!

Micronet also has a celebrity chatline,



Micronet's Multi-User Game, *Starnet*

where famous, or infamous persons are on-line to answer your questions. These are held regularly at a specified time each week.

Mary Whitehouse was to have appeared recently, but she cancelled her appointment at the last minute by saying that she had something more important to do! Steve Gold, of Prestel hacking fame, was on the celeb-line recently.

The news section on the 'Net' is very comprehensive and up to date, providing instant news about the computing industry. There is even a Sunday Extra area, Micronet's own Sunday 'supplement', with news and reviews, not all of a purely computing nature.

There is much more to Micronet than that which I have talked about, but this article is meant only as a rundown of the major services offered. I will conclude by telling you the costs involved. Subscription is £52 per annum, and no connect charges are incurred if you use the system after 6pm.

You will need a modem capable of 1200/75 baud, and suitable viewdata compatible software.

Micronet is definitely worth joining, and £52 pa is a small price to pay for the material available on the system. For further details, contact Micronet at Durant House, Herbal Hill, London EC1 (01-278 3143).



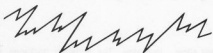
Micronet's Chatline

of a button.

There is a telex service that is very simple to use. Telexes within the UK cost only 57p per frame (one screenful of text). To Europe, a telex would cost over £1.00, and to the USA and Canada, £2.00.

One of my favourite areas on the 'Net', as it's usually called by subscribers, is the chatlines. When you enter the chatlines, you can talk to all the other 'Net' users who

# Your key to communications!



**PRESTEL**

***Micronet 800-***  
***The ultimate peripheral***

Micronet 800  
8 Herbal Hill, London EC1R 5EJ  
Telephone: 01-278 3143

FREE Electronic Mail . . . International  
Telex . . . 10 National Chatlines (Interactive  
Bulletin Boards) . . . 70,000 users across the  
UK . . . Teleshopping . . . Multi-User  
Interactive Strategy Games

Instant computer news . . . Hardware and  
software reviews . . . Technical features . . .  
Hints and tips

FREE and discounted quality software to  
download direct to your micro—**24 hours a  
day**

300,000 pages of information on the huge  
Prestel database

**for just 20p a day**

To: Micronet 800, 8 Herbal Hill, London EC1  
Please send me a brochure on Micronet 800

Name

Address

Telephone No.

Age  Micro

POP-CW 26 86



## Music and micros – getting started

*In the first of a new regular series, Mark Jenkins looks at the potential for making music with your micro*

**M**icro computers turn their hands quite readily to music – after all, music is only a mathematically-related series of sounds occurring in time. Of course, the best music has elements which can't be reduced to mere mathematics, so even if the computer is your chosen instrument some creativity is essential.

In the not-too-distant future it should be possible to choose a computer or synthesiser as an instrument on which to take music exams. Certainly the pop world has rushed to employ computer techniques, with the academic world lagging far behind (with the exception of one or two notables such as Dr Peter Zinovieff, the inventor of the British EMS range of synthesisers many years back).

Many of the computers used in the music industry aren't recognisable as such – they're packaged as musical instruments so that musicians can use them. But over the last couple of years it's become obvious to instrument designers that they can save a lot of effort by using a domestic micro such as the Commodore 64, Atari, Apple, IBM PC or Macintosh (well, these are all domestic micros in the States!) to perform basic functions such as memory storage and data manipulation.

The computer music explosion began a couple of years ago when the Midi standard was introduced for processor-controlled instruments. Sending musical messages in a manner not a million miles away from the RS232 or other computer standards, Midi can be handled by a small micro with a suitable interface – so now Midi keyboards, drum machines, sequencers, sound samplers, computers and even guitars can be interconnected to give powerful compositional facilities.

So how can the amateur musician with a micro compete with the professional with access to a million-pound studio? You can certainly record the sounds of a C64 or BBC B (arranged with an inexpensive software package), but a hardware keyboard add-on will help you play more fluently. Improved voice modules such as Commodore's Sound Expander will give you more professional sounds similar to those from the £1000 Yamaha DX7. And sound samplers such as those from Dattel,

Commodore and 2-bit Systems will allow you to go some way towards reproducing the effects of the Mirage and Prophet keyboards (costing £1,500 and £2,000 respectively) and even of the Fairlight computer musical instrument (a snip at £55,000).

If you want to spend a little money on Midi-based synthesisers, the excellent Casio CZ-101 is the best bet at only £245.

Over and above that, there are fine keyboards available from Roland (the analog Alpha Juno 1 at £550), from Yamaha (the digital synthesiser DX100 at £349) and many others.

Ironically, the micro musician can now use exactly the same equipment as a top professional for very little outlay. If you already have a BBC B, a few hundred pounds will buy you the UMI-2B, a hardware/software Midi sequencer package used by Blancmange, A-Ha, Erasure and many others. Tangerine Dream use Commodore-based packages from C-Lab and Steinberg, while Jan Hammer makes up those dirty drum machine sounds for *Miami Vice* on an Apple-based Eprom programmer. In the States, the Hybrid Arts packages for the Atari 130XE are tremendously popular, and although we have yet to hear of a Spectrum or an Electron in the charts, their time will surely come (there's already a powerful Midi interface and software package for the Amstrad).

The attractive aspect of micro-based music making is that you can start (very) cheaply and build up as your interest

increases. The software packages will help you play along the way (giving easily understood graphics displays, rounding off your timing, helping you create new sounds and so on) and before long you can be in a position to create highly professional sounds. At that stage, your own creativity and imagination have to take over...

In this column we'll be looking at every



Heaven 17

available music package coming on to the market, whether it's for a micro's on-board sound chip, for use with hardware add-ons, or for control of cheap Midi synthesisers via a suitable interface. If you have any cassettes of your own music we'll gladly have a listen, and we'll be happy to answer any questions on micro-based music. Stick with this column and in a couple of years you may be the new Heaven 17.

# SUBSCRIBE TO

**POPULAR**  
**Computing**  
**WEEKLY**

and we will send you free of charge a **Popular Computing Weekly** binder complete with logo and holding 13 (3 months worth) of your favourite computer weekly.

Please enter my annual subscription to Popular Computing Weekly at £19.95 U.K. (\$37.40 overseas), and send my free Popular Computing Weekly Binder.

☐ I enclose a cheque made payable to Sunshine Publications Ltd.

☐ Please charge my Visa/Access card

No:

Expiry Date:

Name:  Address:

Which computer do you use?

Return this form together with your payment to: PCW Subs., 12/13 Little Newport St., London WC2H 7PP (Please allow 21 days for delivery).

PCW88

## SUBSCRIBE

to **Popular Computing Weekly** and receive a free **PCW** binder holding 13 issues of your favourite weekly.

Please enter my subscription to PCW for one year at **£19.95 UK, £37.40 Overseas.**

Name:

Address:

Return to PCW subs, 12-13 Little Newport St., London WC2H 7PP

19PCW29A

## CUT PRICE SOFTWARE

| SPECTRUM         | MSX  | COMMODORE | Cass. Disc         | AMSTRAD | Cass. Disc |
|------------------|------|-----------|--------------------|---------|------------|
| Rock & Wrestle   | 8.95 | 8.95      | Popper             | 5.90    | N/A        |
| SuperSport       | 9.95 | 8.95      | JumpJack           | 8.95    | 10.00      |
| Way of the Tiger | 9.95 | 8.95      | Empire             | 8.95    | N/A        |
| Super Mega       | 7.95 | 5.50      | World Cup Carnival | 7.95    | 10.00      |
| V                | 7.95 | 5.50      | Bounce             | 6.95    | N/A        |
| Star Trek        | 7.95 | 5.50      | Shogun             | 6.95    | N/A        |
| Star Trek II     | 7.95 | 5.50      | Shogun II          | 6.95    | 10.00      |
| Star Trek III    | 7.95 | 5.50      | Shogun III         | 6.95    | 10.00      |
| Star Trek IV     | 7.95 | 5.50      | Shogun IV          | 6.95    | 10.00      |
| Star Trek V      | 7.95 | 5.50      | Shogun V           | 6.95    | 10.00      |
| Star Trek VI     | 7.95 | 5.50      | Shogun VI          | 6.95    | 10.00      |
| Star Trek VII    | 7.95 | 5.50      | Shogun VII         | 6.95    | 10.00      |
| Star Trek VIII   | 7.95 | 5.50      | Shogun VIII        | 6.95    | 10.00      |
| Star Trek IX     | 7.95 | 5.50      | Shogun IX          | 6.95    | 10.00      |
| Star Trek X      | 7.95 | 5.50      | Shogun X           | 6.95    | 10.00      |
| Star Trek XI     | 7.95 | 5.50      | Shogun XI          | 6.95    | 10.00      |
| Star Trek XII    | 7.95 | 5.50      | Shogun XII         | 6.95    | 10.00      |
| Star Trek XIII   | 7.95 | 5.50      | Shogun XIII        | 6.95    | 10.00      |
| Star Trek XIV    | 7.95 | 5.50      | Shogun XIV         | 6.95    | 10.00      |
| Star Trek XV     | 7.95 | 5.50      | Shogun XV          | 6.95    | 10.00      |
| Star Trek XVI    | 7.95 | 5.50      | Shogun XVI         | 6.95    | 10.00      |
| Star Trek XVII   | 7.95 | 5.50      | Shogun XVII        | 6.95    | 10.00      |
| Star Trek XVIII  | 7.95 | 5.50      | Shogun XVIII       | 6.95    | 10.00      |
| Star Trek XIX    | 7.95 | 5.50      | Shogun XIX         | 6.95    | 10.00      |
| Star Trek XX     | 7.95 | 5.50      | Shogun XX          | 6.95    | 10.00      |
| Star Trek XXI    | 7.95 | 5.50      | Shogun XXI         | 6.95    | 10.00      |
| Star Trek XXII   | 7.95 | 5.50      | Shogun XXII        | 6.95    | 10.00      |
| Star Trek XXIII  | 7.95 | 5.50      | Shogun XXIII       | 6.95    | 10.00      |
| Star Trek XXIV   | 7.95 | 5.50      | Shogun XXIV        | 6.95    | 10.00      |
| Star Trek XXV    | 7.95 | 5.50      | Shogun XXV         | 6.95    | 10.00      |
| Star Trek XXVI   | 7.95 | 5.50      | Shogun XXVI        | 6.95    | 10.00      |
| Star Trek XXVII  | 7.95 | 5.50      | Shogun XXVII       | 6.95    | 10.00      |
| Star Trek XXVIII | 7.95 | 5.50      | Shogun XXVIII      | 6.95    | 10.00      |
| Star Trek XXIX   | 7.95 | 5.50      | Shogun XXIX        | 6.95    | 10.00      |
| Star Trek XXX    | 7.95 | 5.50      | Shogun XXX         | 6.95    | 10.00      |

Large selection of AMSTRAD disk & tape available at discount prices. AMSTRAD disk & tape £19.95 per year. Large range of CIBER disk available. This is just a small selection from our stock. Please ring for more details.

P&P included. Overseas orders add 75p per tape. For Mail Order please send Cheques/P.O. payable to CRL Your Access Card orders by phone welcome. In:



**CUT PRICE SOFTWARE, Unit 6, Start House,  
Riverway, Marlow, Essex CM20 2DW  
Tel: (0278) 24433 (24hr answerphone)**



Computer Games is a volatile business. You've got to make the right decisions and work with the right people to be a success. At CRL we've been doing that longer than most Companies have been in business. If you've got a program, you'll want the worldwide distribution we take for granted and the Software Development back-up we pride ourselves in. If you're a designer, a programmer or both, get in touch.



CRL Group Plc, CRL House, 9 Kings Yard, Carpenters Road, London E15 2HD Tel: 01-533 2918

# WD Software

## For the SINCLAIR QL:

**JOSS £15 on mdv or 5 1/4" flp, £17 on 3 1/2" flp**

Forget syntax errors and mistyped names in file commands! Just move a cursor and press SPACE. Cursor keys or joystick allows access to up to 8 microdrives and all the discs your interface will handle, with up to 150 files on each. Scroll & print directories, COPY, DELETE or PRINT any file, select TV or Monitor mode before LOADING/RUNNING a program. Use keyboard only to set date or label a medium. Easy to use with Pison or other software. No silly icons to learn — JOSS will tell you what it's doing! Mass copying/printing utilities and programmer's toolkit. Specify disc size, tracks and interface (CST, Cumana, PCML, MicroPeripherals) or microdrive only.

**RefQL7 £11 on 2 mdvs or 1 3/4" flp, £9 on 5 1/4".**

For use with ARCHIVE 2, contains 1300 useful references and a search/print program. Find programs, articles and reviews buried in the magazines on your shelf! Cheap updates of earlier edition.

**Mdv extension cable (8') £5.50.** Add ZX Microdrives to your QL Joystick Adaptor **£4.99**

## For the QL, Spectrum (all), BBC & Electron:

**WD Morse Tutor £4 cassette, £8 mdv or 5 1/4", £8 3 1/2".**

Teach yourself to read Morse Code. From absolute beginning to 18 words/minute. Feedback on screen or printer. Random letters, numbers or missing-letter words. Very fast machine code. Update Wordfinder 1 for £2.

**Spectrum disc versions** are Opus, TR (Beta) and SPD1.

We export hardware and third-party software. Ask for lists.

Payment

In advance, in STERLING or British bank branches, International Giro,

Postal Order or ACCESS/MasterCard. Add £1 outside Europe for AIRMAIL.

from:

**WDSoftware (PCW), Hilltop, St Mary, Jersey, C.I.**

**Tel 0534 81392**

SPECTRUM — AMSTRAD — COMMODORE

## NOBLES COMPUTER REPAIRS

\* Repairs carried out by our own engineers on site.

\* All repairs carry a 4 MONTH GUARANTEE

For estimates phone or send your computer to NOBLES.

Spectrum Plus ..... **£16.95 inc parts**  
post and pack

Commodore 64/VIC 20 ..... from **£9.95 plus**  
parts

BBC ..... from **£18.95 plus**  
parts

Also repair specialists for Amstrad and MSX computers

**NO HIDDEN CHARGES**

## ★SPECIAL OFFER

**5 FREE GAMES WORTH £25**

with each Spectrum repair Trade/School and Club discounts arranged.

\*For free, no obligation estimates phone or send your computer to NOBLES for the fastest, cheapest repairs in ESSEX.

### NOBLES

14-17 Eastern Esplanade

Southend-on-Sea

Essex

0702 63377/8

63336/7/8/9

7 days a week, 24-hour Answering Service

PS50

SPECTRUM — AMSTRAD — COMMODORE

## COMPLETE DESIGN & PRINT SYSTEM

FOR ZX SPECTRUM 48K/PLUS

### DESIGNER

DESIGN UTILITY FOR SCREENS AND PRINTING

It will do a full A4 print (52 screen lines) with one command.

This ad is 50 lines. It allows full colour control on-screen.

Supplied with 3 fonts and 100 udgs.

### CHARACTER DESIGNER

IS THIS THE BEST AROUND

Design udgs AND characters! It offers TRUE inverse, select

load address or the ones for DESIGNER. A special option

allows printing out of load address, POKes for character sets,

and filename. It comes with 5 fonts, 5 double-height fonts, and

2 udg sets for use with or without DESIGNER.

### DUMPY

BY BRADWAY SOFTWARE. A UTILITY FOR DESIGNING

SCREENDUMP SOFTWARE

Very easy to use, it produces machine-code software for most

Epson-compatible printer and interface combinations, with

many height, width and density options.

All 3 programs are menu-driven and microdrive-compatible.

DESIGNER ..... **£8.95**

CHARACTER DESIGNER ..... **£4.50**

DUMP ..... **£5.00**

SAVE £1.50 BY BUYING

ALL 3 PROGRAMS FOR ..... **£16.95**

GAP SOFTWARE, 17 ST. JOHN'S TCE. LONDON E7

8BX 01-552 5452.

22P01

## FAULTY SPECTRUM?

As you are probably aware from press reports Sinclair Computers no longer have a repair department.

Our computer repair workshop has been an

OFFICIAL Sinclair Repair Depot for the past six years and we are pleased to announce

that we will continue to do your out of guarantee repairs as in the past.

Send your faulty computer DIRECT

SPECTRUM ..... **£18.75 inc parts**

ZX81 ..... **£11.50 inc parts**

16K RAM ..... **£9.95 inc parts**

MICRODRIVE ..... **£15.95 inc parts**

INTERFACE 1-11 ..... **£18.75 inc parts**

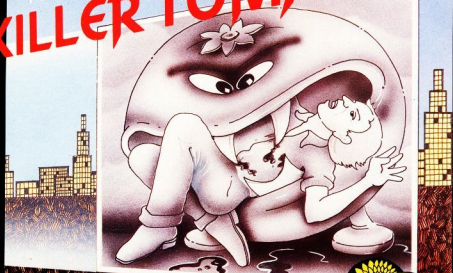
CALL OR SEND WITH CHEQUE OR P.O.

**T.V. SERVICES  
OF CAMBRIDGE LTD  
FRENCH'S ROAD  
CAMBRIDGE CB4 3NP  
Tel: 0223 311371**

18TV

Nominated for the "Worst Vegetable Movie of all Time"

# ATTACK OF THE KILLER TOMATOES



A GLOBAL  
GOLDEN  
TURKEY  
PRODUCTION

## Squash 'em or be squashed

Based on one of those all-time lows in the world of movie making that were actually nominated for a Golden Turkey Award, the Attack of the Killer Tomatoes squelches on to your screens courtesy of Global Software

It's a bit of a sauce, really. There's Wimp Plasbott, working away in the PuraTom (tm) processing plant, when suddenly, several hundred killer tomatoes turn on you.

Rotten, aren't they?

All you have to do is to help Wimp keep the Pizza Parlours well supplied with purée while attempting to hammer the reds before they can do the same to you.

Sounds absolutely killing, doesn't it?

But can you stand the sight of rivers running red? And have you got the bottle for it?

If you haven't, hard squash!

Available for: Spectrum 48K, all Amstrad CPC machines and all MSX 64K machines

Available through all good dealers

£7.95

Send cheques & P.O.'s to:



GLOBAL  
SOFTWARE

PO Box 67, London SW11 1BS.  
Tel: 01-228 1360

# CLASSIFIED

Semi-display — £7 per single cc (+ VAT)  
Lineage — 30p per word (+ VAT)

CALL JON BEALES ON 01-437 4343 FOR SEMI/DISPLAY ADVERTISING

## SOFTWARE

**AMSTRAD** software Elite, £8, Get Dexter, Zoids, £5 each, Spy vs Spy, Raid, Yie-Ar Kung-Fu, Fighter Pilot, Highway Encounter £3.50 each. More software for sale/swap. Phone Omar 556 7277 before 5.30 pm.

### GIANT NEW ADVENTURES

#### "LOVETOT" and "GORDESS"

CBM 64/128, Spectrum 48k

only £1.00 each

PO BOX 1526, DUBLIN 18PL25A

**HOME ACCOUNTS.** Put your house in order! Comprehensive coverage of bank accounts, credit cards, HP, etc. Inbuilt accuracy check. Projects cash flow for any period. Available for Commodore, Amstrad and Spectrum £8.45. Free details from Discus Software, Freeport, Beach Approach, Brixham TQ5 8BR. Tel: 0845 55532.

## FACULTY ENTERPRISES

| AMSTRAD           | RRP  | PRICE | COMMODORE         | RRP  | PRICE | SPECTRUM              | RRP  | PRICE |
|-------------------|------|-------|-------------------|------|-------|-----------------------|------|-------|
| Rambo             | 9.95 | 6.75  | Superbowl         | 9.95 | 6.75  | Sold A Million II     | 9.95 | 6.75  |
| Sold A Million II | 9.95 | 6.75  | Sold A Million II | 9.95 | 6.75  | World Cup             | 7.99 | 1.99  |
| Friday 13th       | 9.95 | 6.75  | Friday 13th       | 9.95 | 6.75  | Friday 13th           | 7.99 | 1.99  |
| Ship of Doom      | 7.25 | 2.25  | Missile Command   | 7.25 | 1.99  | Ship of Doom          | 6.50 | 1.75  |
| Planet of Death   | 7.25 | 2.25  | Pilot 64          | 7.25 | 1.99  | 30 Bats Attack        | 6.50 | 1.75  |
| Space Hawks       | 8.99 | 3.25  | Automania         | 7.25 | 3.25  | Flight From Dark 7.35 | 3.25 |       |
| 3D Invaders       | 8.99 | 3.25  | View To A Kill    | 8.99 | 3.25  | Cosmic Cruiser        | 7.25 | 3.25  |
| Harrier Attack    | 8.99 | 3.25  | Flyer Fox         |      |       | Black Hole            | 7.25 | 3.25  |
| View To A Kill    | 8.99 | 3.25  | Speech            | 7.99 | 1.99  | View To A Kill        | 7.25 | 3.25  |

P + P INC. PLEASE MAKE CHEQUES PAYABLE TO

## FACULTY ENTERPRISES,

29 RUTLAND COURT, PONDERS END,  
ENFIELD, MIDDLESEX. 01-805 8054

22PL1A

**SOFTWARE EXCHANGE.** Swap your used programs. Home program base. CBM 64/Spectrum SAE for details please. UKSEC (PCW) 15 Tunwell Greave, Sheffield S59 6B.

**PSION ORGANIZER** pocket computer, £49 ono. Amstrad CPC464 + green screen + modulator + various software, £150 ono. All still boxed. Tel: Mr M Swanson 079 052120

### AMSTRAD BARGAINS

Amstrad 51 disks always in stock. Only £20.95 for 10 SPECIAL OFFER. We are giving away 10 games FREE with every order of 10 disks (suitable for Amstrad 486, 504 & 5128 only).

|  |        |
|--|--------|
| Amstrad AMX mouse package                    | £19.95 |
| Orson Laser Beam disc package                | £15.00 |
| Talented AMX disc word processor             | £15.00 |
| Prize Utilities TRANSMAT transfer utility    | £5.00  |
| Design Design's WORKING BACKWARDS games disc | £5.00  |
| Amstrad's SORCERY PLUS games disc            | £7.00  |
| Amstrad's BEACHHEAD games disc               | £8.00  |
| Make chessmen-PO's possible to MAGNUS        | £5.00  |

Send your cheque to: Magnus Computing, Limited  
Immediate PCW, P.O. Box 228, Hargreaves, Leeds, ALL 2 2JL

IMMEDIATE DISPATCH ON ALL ITEMS

22PL1A

## FOR SALE

## BLANK CASSETTES

### WITH LIBRARY CASES

|     | C10   | C15   | C20   | C30   |
|-----|-------|-------|-------|-------|
| 10  | 3.80  | 4.00  | 4.15  | 4.60  |
| 20  | 7.60  | 7.20  | 7.40  | 8.20  |
| 50  | 15.00 | 15.20 | 15.50 | 17.50 |
| 100 | 27.00 | 28.00 | 29.00 | 33.00 |

Fully insulated (ICOD 85p extra)

Superior Tapes. Don't Settle for Less!

RING US NOW! (0763) 695534

UK HOME COMPUTERS, 82 CHURCHWARD AVENUE, SWINDON, WILTS SN2 1NY 22PL1A2

**BASIC+ 45.** New commands for Amstrad Basic includes toolkit, graphics, cassette and keyboard extensions, and basic 1.0 to 1.1 upgrade. Also instruction and demonstration programs. £5. from A.M. Scott, 30 Talbot Street, Grangemouth, Stirlingshire.

## NEW RIBBONS

### FOR OLD

Why pay £24 for a new fabric ribbon cassette when we can re-link your old one at a THIRD OF THE PRICE?

Post cassette, stating printer make and model and enclosing one third of the price of a new one (minimum £1), to:

ALADDIN, (Dept. PC), 4 Harker Crescent, Eyemouth, Berwickshire, TD14 5AP. 22PL1A

## AMSTRAD TAPE TO DISC

DISC is a new machine to transfer your tape software onto disc, and able to handle most of those difficult ones, including formatted files, code loaders, and those which overwrite the disc cards. Price at £19.95 includes 3 months membership of CAMELCLUB.

SPECIAL OFFER ON MINI-OFFICE 2 (Disc) £16.50 just one example of the discounts available from CAMELCLUB.

Checklist PO to: CAMEL MICRO, Walpole, Wilton Avenue, Exeter, Devon EX2 0BE. Tel: (0302) 211882 22PL1A

## DISKS

### 5 1/4" DISKS

10 for £8 inc plastic case plus P&P

### 3 1/2" DISCS

10 SS/DD £25.00

10 DS/DD £30.00

RING US NOW (0763) 695534. UK HOME COMPUTERS, 82 CHURCHWARD AVENUE, SWINDON, WILTS SN2 1NY 22PL1A

## 48K SPECTRUM

20 CHARACTER SETS - enhance your own programs.

SOUND EDITOR - create your own sound effects.

POOL - full version of the classic game 9-HOLE GOLF - for armchair sports fans £1.99 EACH OR ANY TWO FOR £2.99

Please send cheque/PO to: Galileo 7, 78 Brighton Road, Worthing, West Sussex, BN11 2EN 22PL1A

**AMSTRAD AND COMMODORE** software hire. Low rates. Sell or exchange unwanted software. Send stamp K+M Computer Club, 40 Fairstead, Birch Green, Skiersdale, WNB 6RD.

## HINTS - POKES - MAPS

### "Earning Value" - Tony Briggs,

Popular Computing Weekly

The monthly hints, packed with Tips, Tricks, Hints, Maps, Solutions, Group, Letter Reviews, Competitions, plus much more.

|   |        |
|---|--------|
| Adventures Handbook (CBM/SPC)   | £1     |
| CBM/SPC 4 Handbook  | £1     |
| Amstrad Handbook  | £1     |
| 8088 Handbook   | £1     |
| Commodore 64/128 Arcade Handbook  | £1     |
| Spectrum 48/128 Arcade Handbook   | £1     |
| or for more better value take advantage of our reduced subscription rates - 3 issues £2.75, 6 issues £5.00, 12 issues £9.00 sent direct in P.O. to: | 22PL1A |

HUB SERVICES (P.O.)  
100 Aldershot Road, Hants, Basingstoke,  
Hants RG24 0LH. Tel: 0125 5588

CBM 1541 DISK DRIVE, £100. Printer for QM, £55. Telephone Cambridge 80759 after 6pm.

## CLASSIFIED ADVERTISING RATES:

Line by line: 30p per word, minimum 20 words.

**Semi-display:** £7 per single column centimetre, minimum length 2 cm. (Please supply A/W as PMT. Or supply rough setting instructions.)

**THESE RATES DO NOT INCLUDE VAT.**

**Conditions:** All copy for Classified section must be pre-paid. Copy date 7 days before publication.

IF YOU WISH TO DISCUSS YOUR AD, PLEASE RING Jon Beales 01-437 4343.

## Here's my classified ad.

(Please write your copy in capital letters on the lines below.)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Please continue on a separate sheet of paper

I make this ..... words, at ..... per word so I owe you £ .....

Name .....

Address .....

Telephone .....

Please cut out and send this form to: Classified Department, Popular Computing Weekly, 12-13 Little Newport Street, London WC2H 7PP.

HAVE



# EXPRESS SPECTRUM, BBC and COMMODORE REPAIRS!

**SOFTWARE**  
RRP £24.00 FREE WITH  
EVERY REPAIR\*

**WHY PAY HIGH  
'FIXED'  
PRICES**

Spectrum  
repairs between  
£9 and £20

BBC repairs  
between  
£14 and £25

Commodore  
repairs between  
£14 and £25

\*Spectrum only

(We do not charge you for our fancy premises by charging high 'fixed' prices)

Reputations take time to build, we have been repairing ZX81's, Spectrums, QL's, Apples and BBC's professionally for 2 1/2 years - who is coming second?

in all U.K. with While-a-Wait repair! with INTERNATIONAL repair service!

to charge LOW PRICES for the smaller repair! (eg. £8 for keyboard faults)

FOR LOW PRICES - "My computer down recently, I took it to MANCOMP, who fixed it in 10 minutes and for less than £10 that they are local, speed up, and bindings efficient!" - HAZARD DICKET

FOR PROFESSIONALISM - "I call all the repair companies 'Sincere' User spoke to MANCOMP, seemed the MOST PROFESSIONAL, when I called to advise and a helpful attitude! ALIC BEE

FOR HONESTY - "We use your watch your computer being repaired. We are not hiding anything with it, we will tell you!"

FOR REPUTATION & HELPFULNESS - "I have come across a firm that will be more than willing to advise you as to how to remedy your problems. They are called MANCOMP and as well as repairing faulty computers, are also quite willing to discuss your problems with you and offer reasonably cheap and more importantly CORRECT CURES!" The biggest POPULAR COMPUTING WEEKLY JAN 85

FOR SPEED - "One firm at least can effect any necessary repairs over the counter in 45 minutes. Based in Manchester, MANCOMP can offer what is arguably the FASTEST turnaround in the business to personal callers!" CRASH Magazine JUNE 1985

THIS IS WHY! Spectrum users from London, Cornwall, Scotland, Manchester, Liverpool, Coventry, Leicester, Glasgow, LDM, etc. AUSTRALIA, AUSTRIA, BELGIUM, EGYPT, FRANCE, GERMANY, HOLLAND, ITALY, NETHERLANDS, POLAND, SWITZERLAND, SWITZERLAND, and ZIMBABWE - send their Spectrums to MANCOMP for repair! 24-HR TURNAROUND. NO QUEUES! GUARANTEE. NO HIDDEN COSTS.

NEW GUINIA, SAUDI ARABIA, SWITZERLAND, SWITZERLAND and ZIMBABWE - send their Spectrums to MANCOMP for repair! 24-HR TURNAROUND. NO QUEUES! GUARANTEE. NO HIDDEN COSTS.

Because we repair hundreds of computers every week, we are able to pass on our 'component buying discount' to YOU in lower prices. Z80A cpu £1.50, 4116 S0p, Upgrade fixed £18.50 - we bring down the prices for repairs and components!

(We may refuse to rewire computers suffering from attempted D.I.Y. repairs!)

Every parcel sent by Royal Mail Registered Post and insured (return, journey) for next day delivery include £1.50 (extra).

(See us by prior arrangement): On-site maintenance for Apples, IBM's and most makes of printers also available. Guaranteed 4hr response! WE'LL REPAIR OR YOUR ESTIMATES ARE FREE AND WITHOUT OBLIGATION IF

YOU DO NOT LIKE OUR ESTIMATE WE WILL RETURN THE COMPUTER AND REFUND THE POSTAGE INCURRED

**MANCOMP LTD**  
(Dept. PCW723)

Printworks Lane, Levenshulme, Manchester M19 3JP

Phone 061-224 1888.

OR 061-224 9888.

OPEN MON - SAT 9am to 7pm



## COMPUTER REPAIRS

ALL MACHINES DESPATCHED  
WITHIN 72 HOURS OF RECEIPT

For example:

|                   |        |
|-------------------|--------|
| Spectrum Plus     | £17.00 |
| 16-48 RAM Upgrade | £25.00 |
| ZX81              | £12.50 |
| Interface I       | £18.00 |
| ZX Microdrive     | £16.50 |
| BBC 8             | £25.00 |

(All prices include parts, VAT, labour, return postage insured, and full warranty)

For a fast and reliable service send machine, brief description of fault and cheque or PO for relevant amount to the experts:

## CAPITAL COMPUTER SERVICES

Dept P  
Unit K2, Cardiff Workshops  
Lewiss Road, East Mears  
Cardiff CF1 5EG

Tel: Cardiff (0222) 461801

We also service Acorn, Dragon, Commodore, Lynx and Dac systems. Please telephone for a quote.

12PL8

## BBC SPECTRUM REPAIRS

★ BBC Spectrum repairs £18.50 inc parts, insurance and p.p.

★ BBC 8 repairs £16.50 + parts, insurance and p.p.

Send your computer with cheque or P.O. for £18.50 and description of fault to:

**SUREDATA (PCW)**  
Computer Service  
45 Wyndham Avenue, Edgeware,  
Middx.

Tel: 01-951 0124 23PL53

## COMPUTER REPAIRS NOW IT'S YOUR CHOICE

SPECTRUM  
DRAGON  
BBC  
COMMODORE

| Fixed Price | Quotation      |
|-------------|----------------|
| £19.95      | £9.95 + parts  |
| £29.95      | £11.95 + parts |
| £34.95      | £13.95 + parts |
| £39.95      | £15.95 + parts |

- Guarantee: Six Months
- Extras: None - Post, VAT & Insurance inc.
- Quoter: Mail Computer & Daytime Contact Phone No.
- Fixed Price: Mail Cheque + Computer
- Range: We also repair IBM, Apple, Osborne, Sirius, Apricot - wide range of Peripherals.

Call (0423) 501679 Anytime  
OMNICON LTD,  
16 Haywards St,  
Harrogate HG1 5BJ

15PL99

## LONDON COMPUTER REPAIR CENTRE

- Spectrum, Commodore, BBC, Atari, Amstrad etc.
- ★ Low cost repairs from £12.00
- ★ Collection & delivery optional
- ★ Used Micro's bought, sold, exchanged.
- Call NIGEL: 01-863 7166

**MICRO SUPPORT**  
Unit 3, 15 Springfield Road,  
Harrow, Middx, HA4 1QF.

15PL3

## SCOTLAND'S No1

- for home and personal computer repairs
- specialist fast spectrum service!
- ★ Same day for most faults
- ★ 1 hour if delivered personally
- ★ Free estimates
- ★ Upgrades: Membranes and P.S.U's
- ★ 3 mth warranty on work done
- ★ Open 6 days a week
- Now BBC/COM/ACORN and PERIPHERALS

**MICRO-SERV**  
95 Deerpark Way  
Westfield Industrial Estate  
Cumbernauld  
Tel: Cumbernauld 02367 37110  
Trade, schools and club discount given. 14L24

## FOR SALE

## YOUR PERSONAL CENTRONICS PRINTER

**£99 plus vat**  
plus £8 p+p



- ★ DRAFT MATRIX PRINT
- ★ NEAR LETTER QUALITY
- ★ SUBSCRIPT SUPERScript
- ★ CONDENSE EMPHASIZE
- ★ 96 CHAR+48 EURO+16 MATHS
- ★ GRAPHICS
- ★ OPTIONAL TRACTOR

**ROCK HALL**  
TEL: (0533) 313531

AMSTRAD 6128 G/S Modulator. Discs, Games, Joystick, Magazines C350. Also Spectrum games, magazines to clear. £150 or will split. Tel: 021-422 2846 after 5.30pm.

ATARI 520ST complete monochrome package as new. 1MB disc drive, usually £699, sell for £549 only. Telephone: Sunderland 362165 after 6pm.  
C8M4 GAMES. Fighter Pilot, Pitstop, Match Point, Super Huey, 50 games cassette, all £4 each. Tel: 0506 411534.  
EIGHT GAMES for 48k Spectrum, £5. Kartangon 2 Adventure, £2. Running Free, £2.50. Karl Crawford, 90 Westfield Avenue, Redcar, Cleveland TS10 1HG.

TV PURSUIT at last TV Pursuit 48k Spectrum. Over 12 questions. Send cheque, PO £5 E. Lewis, 36 Surrey Tower, Graveney Grove, London SE20 8UW.

**BONZO MODDOL AMSTRAD CPC Series**  
A FANTASTIC NEW UTILITY DESIGNED TO TAPE TO DISK CONVERSION, TRANSFER, BACKUP, DELETE, REPAIR, AND MORE! Also Disk Copy with user RECOVERIES and user TALK DISKCOPY file disk (please during the weekend).  
HARD, JOY, SENSORS, THEN EXTENDED CAPABILITIES. REPAIRS TO SAT AMIGOS. AUTOMATICALLY CALCULATES. 32K RAM IN REPAIR.  
DISCOS are included on tape transfer that do not  
by return of post. £5.95 inclusive from  
**NEMESIS (PCW)**  
10 Carline Road, Bingham, Nottingham.  
NEMESIS N14 42W 23PL6  
052 M030.05 inc. available at 0450 inc.

## COMPUTER HIRE

TO HIRE A COMPUTER AND/OR PERIPHERALS BY THE WEEK OR MONTH  
RING 01-607 0157 or 01-897 6457  
WE SPECIALISE IN BBC AND ALSO HAVE A RANGE OF AMSTRAD COMPUTERS FOR HIRE

**COMPUTER HIRE SERVICES, 294A CALEDONIAN RD, LONDON N1 1BA.** 23PL17

## ACCESSORIES

## MEMOTECH COMPUTERS AND ACCESSORIES

|                              |         |
|------------------------------|---------|
| MICROTECH V33 COLOUR MONITOR | £349.00 |
| MTX 512 COMPUTER             | £95.00  |
| DMK 80 PRINTER               | £175.00 |
| RIS23                        | £25.00  |
| 1MB DISK DRIVE & INTERFACE   | £210.00 |
| NEWWORD ROM                  | £35.00  |
| PASCAL ROM                   | £35.00  |
| SPECULATOR ROM               | £35.00  |

All the above prices are fully inclusive. We stock the entire Memotech range. Orders/Inquiries to: 10 HE COMPTONS ST. ST. CHURCHARD ARE SWINDON. WILTS. SN2 8JH. 34 to 36 West Street, SWINDON. 0297

## DISCS

|                   |               |
|-------------------|---------------|
| AMSOFT 3" CF2     | £33.00 PER 10 |
| AMSOFT 3" CF2DD   | £59.50 PER 10 |
| AMSOFT 3" CF2     | £17.35 PER 5  |
| SONY 3 1/2" D3440 | £26.25 PER 10 |
| SONY 3 1/2" D4440 | £35.12 PER 10 |
| MAXEL 5 1/4" M020 | £17.90 PER 10 |

PACK & POST INC. ADD 15% VAT 23PL11

**RUGBY MICRO SPARES**  
30 OXFORD ST RUGBY  
CV21 3NF. (0788) 71643  
Callers welcome by App.

# There's a Dealer near you . . .

## BIRMINGHAM

**D.G. MICROTEK ELECTRONICS**  
190B DUDLEY ROAD  
WINSON GREEN  
BIRMINGHAM  
Tel: (021) 454 4697

PL144

## ESSEX

**NOBLES**  
14-17 EASTERN  
ESPLANADE  
SOUTHEND-ON-SEA,  
ESSEX  
Tel: (0702) 63377/8

PL188

**CAREY ELECTRONICS**  
FOR  
THE BBC MICROCOMPUTER  
SYSTEM  
COMPUTERS, AND SOFTWARE,  
PERIPHERALS.  
7 CHURCH ROAD  
WALTON-ON-NAZE, ESSEX  
FRINTON-ON-SEA (02566) 6993  
9am-9pm

PL144A

**H REYNOLDS**  
79 ORSETT ROAD  
GRAYS, ESSEX  
Tel: (0375) 375948

PL181

**MIKES COMPUTER STORE**  
292 LONDON ROAD  
WESTCLIFF-ON-SEA  
ESSEX  
Tel: (0702) 332554

PL185



520 STM  
£399

## Communication Plus+ FOR COMPUTING AND MORE

**5 HONEYWOOD ROAD**  
(Off Cranes Farm Rd)  
**BASILDON**  
Tel: (0268) 21818

PL182A

## Communication Plus+ FOR COMPUTING AND MORE

**c/o KEDDIES**  
(second floor)  
**HIGH STREET**  
**SOUTHEND**  
Tel: (0702) 62426

PL182

## ESTUARY PERSONAL COMPUTERS

318 CHARTWELL NORTH  
VICTORIA CIRCUS SHOPPING CENTRE  
SOUTHEND ON SEA  
Tel: (0702) 614131

PL144A

## GLASGOW

**THE COMPUTER DEPOT**  
205 BUCHANAN STREET  
GLASGOW G1 2JZ  
Tel: (041) 332 3944

PL185

## HEREFORDSHIRE

**HONEYSETT COMPUTERS**  
17 UNION STREET  
HEREFORD HR1 2BT  
Tel: (0432) 279404  
ASK ABOUT  
CLUNKER SALE

PL182A

## HUMBERSIDE

**THE COMPUTER CENTRE**  
(HUMBERSIDE)  
26 ANLABY ROAD  
HULL  
NORTH HUMBERSIDE  
0482 26297

PL183

## KENT

**ANIROG COMPUTERS**  
29 West Hill  
Dartford  
Kent  
Tel: (0322) 91649

PL184

**dgh** Software centre  
**10 NORTH STREET,**  
**ASHFORD, KENT**  
Tel: (0233) 32597

PL188

**MICROWAY COMPUTERS**  
39 HIGH STREET  
RAINFHAM, KENT  
Tel: (0834) 376702

PL1812

## MIDDLESEX

**INNOVATIONS**  
**COMPUTER & VIDEO**  
9 HARMONDSWORTH ROAD  
WEST DRAYTON  
MIDDLESEX UB7 9JS  
Tel: (0895) 420457

PL1818

## LEEDS

**MUGGERIDGE**  
NORTHWOOD HOUSE  
LEEDS LS7 2AA  
Tel: (0532) 45800

PL183

## LEICESTERSHIRE

**DIMENSION COMPUTERS LTD**  
27-29 HIGH STREET  
LEICESTER  
Tel: (0533) 57479

PL182

## LONDON

**LOGIC SALES**  
19 THE BROADWAY  
THE BOURNE, SOUTHGATE  
LONDON N14  
Tel: 01-882 4942

PL186

**VIC ODDENS**  
6 LONDON BRIDGE WALK  
LONDON SE1  
Tel: 01-403 1908

PL188

**SOFTWARE STORE LTD**  
35 LONDON ROAD  
LONDON SW17  
Tel: 01-685 1476

PL188

**GAMES WORLD**  
129 KING STREET  
HAMMERSMITH  
LONDON W6  
Tel: 01-741 4467

PL1818

## LIVERPOOL

### BLUE CHIP

**BLUE CHIP**  
77 ALLERTON ROAD  
LIVERPOOL L18 2DA  
Tel: (051) 722 3037

PL188

## SUSSEX

**GATWICK COMPUTERS**  
62 THE BOULEVARD  
CRAWLEY, SUSSEX  
Tel: (0293) 28240/37842

PL1812

## SUFFOLK

**FOR MSX, SPECTRUM,  
COMMODORE, AMSTRAD**



Sudbury Micro Systems  
Computer Retail & Consultancy

**84 NORTH STREET  
SUDBURY  
TEL: SUDBURY 311839**

PL919

## S. WALES

**MAPPLE MICRO ASSOCIATES**  
FREEPOST  
PO BOX 17  
CWMBRAN  
GWENT NP44 3YT

PL648

## YORKSHIRE

**MICRO BYTE SOFTWARE SHOP**  
**36 COUNTY ARCADE**  
**LEEDS**  
**FULL RANGE OF TOP**  
**QUALITY SOFTWARE,**  
**PHONE FOR PRICES**  
**Tel: (0532) 450 529**

PL5

**YORK COMPUTER CENTRE**  
**7 STONEGATE ARCADE**  
**YORK**  
**Tel: (0904) 641862**

PL19

## WARWICKSHIRE

**FAST FORWARD COMPUTER STORE**  
**29 SMITH STREET**  
**WARWICK**  
**Tel: (0926) 492004**

PL645

## NORFOLK

**THETFORD MICROS**  
**SPECIALISTS -**  
**COMPUTER REPAIRS**  
**21 GUILDHALL STREET**  
**THETFORD**  
**NORFOLK**  
**(0842) 61645**

PL1026

**TELEX YOUR**  
**CLASSIFIED**  
**COPY TO:**  
**296275**  
**SUNRGY**

PL65

## STAFFORDSHIRE

**MICROTRONICS**  
**27a MARKET STREET**  
**TAMWORTH, STAFFS**  
**Tel: (0827) 51480**

PL11

**HOME SOFT COMPUTING**  
**1st FLOOR**  
**81A BOLEBRIDGE ST**  
**TAMWORTH**  
**STAFFS**  
**(0827) 63549**

PL181

**MICRO BYTE SOFTWARE SHOP**  
**19A LOWER WARREN CENTRE**  
**WAKEFIELD**  
**Tel: (0924) 376656**  
**FULL RANGE OF**  
**TOP QUALITY SOFTWARE**  
**PHONE FOR PRICES**

PL16

**FOR**  
**POWERFUL**  
**DEALER**  
**ADVERTISING**  
**CALL JON**  
**BEALES**  
**on 01-437 4343**

PL11

FAST reliable service of DATA DUPLICATION for direct com-  
puters. Comprehensive facilities include: software  
recording, data discs, cassettes, blank & printed  
labels, tapes. COMPLETE WORK LOG forms.



PL395

## COMPUTER PROGRAMS

REAL TIME or slower than 8000 professional  
Cassette Duplication and Blanks 1 to 1,000+  
Computer printed cassette labels, BBC disc copy-  
ing 1 to 500+ Fast Security Delivery Service.

Be records - a division of FILTERBOND LTD.  
19 Sedgemoor Way, Westwood G514 3JZ.  
0892 551168

PL357

## AMSTRAD PCW 8256 and PCW 8512

Dust covers monitor and key-  
board. Highest quality, only  
£9.50 inc. p+p.

Send your cheque made pay-  
able to  
**Willows Secretarial Services,**  
**Greyhound House, 23 George**  
**Street, Richmond, Surrey TW9**  
**1JY.**

22PL31

## PROFESSIONAL ELECTRONICS TECHNICIANS

Short & in-hailing courses (2 week)

## VCR SERVICING

## MICROCOMPUTER SERVICING

CONCORDANCE also available on cassette

\* MICRO GRANT AID to EMPLOYERS/TRAINERS \*

Television/Video/CCTV/MICROELECTRONICS

Information Technology/CAD/CAM/ATE

MICROPROCESSOR/COMPUTER CONTROL

**LONDON ELECTRONICS COLLEGE**

Dept NPL, 23 Pymmes Road, London E9 6JH

Telephone 01-373 8727 21PL2

**QL Games! - Zkull - BJ in 3D - BJ The**  
**Return - Match Point - £8 each - Flight**  
**Simulator - £11-£40 for the lot. Write to**  
**John Franklin, Fleets Cottages, Wellan,**  
**Near malvern, Worcs WR13 6NA.**  
**SPECTRUM + £70. Microvitic Monitor**  
**£160. Mannesman Tally Printer for**  
**Spectrum £160. All boxed, manuals,**  
**many other add-ons, 250 tapes. Send for**  
**lists. Turner, Little Barn, Arford,**  
**Headley, Hampshire GU35 8BS. 0428-**  
**713019.**

**ELECTRON/BBC Pools Predictor. With**  
**formfinder. Cover 60% accuracy! Perm-**  
**Planner-Plus etc. Send cheque/PO for**  
**£7 to A. O'Brien, 3 Garden Cottages,**  
**Glencroft Avenue, OSAN, Argyll, PA34**  
**4QB. Cassettes sent by return post. (1st**  
**class).**

**BETA + Disc Interface + 80 track**  
**double sided drive for 48k Spectrum £150**  
**ono. Commodore MPS 801 printer (new)**  
**£70 ono. Commodore MPS801 Printer**  
**(New) £70 o.n.o. Write to Derek Scott,**  
**260 Harden Place, Hawick, Scotland**  
**TG9 7BY. Phone: (0450) 78666.**

**ADVENTURE tape to disk transfers. Most**  
**programs transferred. Send original**  
**cassette + disk + £150 for fast return**  
**to: M.J. Dyoa 64 Durham Court,**  
**Ellesmere Port, South Wirral L65 9ED.**

**IBM PC upgrade. Also T/8-remer**  
**and M/C cards. Can be installed in South**  
**of Britain if necessary. Good prices.**  
**Phone 0252 622750 evenings.**

**ADVENTURE Maps/solutions "Worm**  
**in Paradise" (12 pages) £1.20. "Seabase**  
**Delta" (4 pages) 50p, many more S.A.E.**  
**for list, please Mr J.R. Barnsley, 32**  
**Merrivale Road, Stafford, Staffs ST17**  
**9EB.**

**AMSTRAD 484 Colour. Lots of tape**  
**software £190 disc drive £100, Skywave**  
**Interface £50, Interlink Model £100 or**  
**the lot for £420 o.n.o. seeing is believ-**  
**ing. Tel: 685 1310.**

**SINCLAIR Spectrum + Interface I & II**  
**Microdrive Joystick, Currah, NSpeech,**  
**Programmable Joystick Interface. Lots**  
**of Software Books sent for £160 o.n.o.**  
**Phone 0243 69 2482. Ask for Antony after**  
**7pm weekdays.**

**ADVENTURE Exchange Service. Free**  
**membership. Exchange your completed**  
**adventures. S.A.E. for details. A.E.S. 78**  
**Merion Road, Highfield, Wigan WN3**  
**6AT.**

**ATARI 800XL, 1050 Disc Drive, 1010**  
**Cassette Player, Touch Tablet, and Atari**  
**Basic Tutor Books and Cassettes. £250**  
**o.n.o. or swap for Commodore 64 and**  
**1541 Disc Drive. Phone (0903) 47009.**

**ADVENTURE Probe. Writing, solving or**  
**stuck? This is the magazine for you!**  
**Sample copy £1 or S.A.E. for details. Pat**  
**Winstanley 13 Hollington Way, Wigan**  
**WN3 6LS.**

**WANTED December 83 Popular Com-**  
**puting Weekly must contain article on 3-**  
**D Graphics. Also any other articles on 3-**  
**D graphics for the BBC. Private**  
**purchase. Phone Ian on 216088.**

**LYNX Software (inc. Lords of Time,**  
**other Level 9 Adventures). Books, mag-**  
**azines, cost over £100 - £50 o.n.o.**  
**Burglar tool machine! £21-360 7288.**

**ATARI 800 400 the impossible disk back**  
**up system works on any disk. Fits into**  
**operating Rom module £30 complete**  
**with 4K extra RAM and full instructions**  
**949 8964.**

**QL plus books, programs, blank car-**  
**tridge, manual 7 month old. Excellent**  
**condition, little used. Will sell for £75**  
**write to Abad27 11 Breeze Hill,**  
**Connaught Quay, Clevedon CN6 4NW.**

**MEMOTECH Speculator and 2 games**  
**swap for RS232C board or sell for £20.**  
**Phone: North Shields 2583320.**

**ATARI goods, direct connect**  
**modem Prestel, BBC etc £80. 410 Recorder £15.**  
**1020 Printer Plotter £40. Cassette soft-**

ware originals £2. Books, Mags. Write  
Ronnie Church Rd, London NW4 4DU.  
01-2034545.

**ATARI 820ST disc drive (SF354). Boxed**  
**AS-New. £99. 01-729 2904.**

**PSION Organizer Pocket Computer of-**  
**fers around £50. Amstrad CPC464,**  
**green monitor + colour modulator +**  
**Programs including Dvcpac + joystick.**  
**£150 o.n.o. All still boxed. Phone M. J.**  
**Swanson, Spiltsby (0790) 52120.**

**FOR sale Commodore 1541, disk drive**  
**£30. Fergusson TV with RGB £100, Com-**  
**modore Easy Script 0271 tape £40 each.**  
**All good as new. Ring 0277363991 after 7**  
**pm.**

**AMSTRAD 6128 (Green), CPM plus Dr**  
**Pascal (with 2 manuals), C Compiler,**  
**3D-Chess, Oddjob, Bridge Player, 4**  
**months old. With DMP2000 Printer £400,**  
**without DMP2000 Printer £400, without**  
**£250. Tel: 01-567 4351 (ask for Levent).**

**AMSTRAD CPC464 Green Screen, disk**  
**drive, loads of tape and disk games**  
**(Elite, WDW2, get Dealer etc), may split,**  
**bargain at £250 ono 01-672 2509.**



## DRAGON USER

To make the most of your Dragon you  
need Dragon User - the independent  
magazine for Dragon owners. To make  
sure that you receive a copy of Dragon  
User regularly, write direct to us. A  
year's subscription costs £14 for 12 issues  
(overseas rates available on application).  
Send a cheque or postal order made  
payable to Dragon User, and accompa-  
nied by your name and address, to: Dragon  
User, Subscription Department, Oakfield  
House, Perryman Road, Haywards  
Heath, Sussex RH16 3DH.

PL37

# New Releases

**John Cook looks through this week's new arrivals**

## AMSTRAD

**Program Office Male Type** Utility **Micro Amstrad Price** £15.00 **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Office Master Type** Utility **Micro Amstrad Price** £25.00 (tape or disc) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Wild Bunch Type** Utility **Micro Amstrad Price** £1.99 **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program Spiky Harold Type** Arcade **Micro Amstrad Price** £1.99 **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program Graham Gooch's Test Cricket Type** Arcade **Micro Amstrad Price** £9.95 (tape) £14.95 (disc) **Supplier** Audio-Genic, 12 Chiltern Enterprise Centre, Station Road, Theale, Berkshire RG7 4AA.

**Program Classic Invaders Type** Arcade **Micro Amstrad Price** £2.99 (tape) £9.95 (disc) **Supplier** Bubble Bus Software, 87 High Street, Tonbridge, Kent TN9 1RX.

**G**olly - *Classic Invaders?* It can't be! No! All the memories of a mispent youth come flooding back. Leaning up against the wooden cabinet of an Invaders

the machine with 10p's.

And now, Bubble Bus would have it, these glory days can be recreated with *Classic Invaders*. Amstrad style, released under its 'Mini-Bus' range. Or can they?

Loading the game shows the same basic scenario as ever - you control a laser base at the bottom of the screen, whose destiny is to move left and right, then zap the hordes of aliens that are slowly descending from the top of the screen, to invade the Earth. They are also constantly dropping bombs which you must skillfully avoid, only aided by the cover your three bunkers can give you, until they too, are blown to bits.

Kill them all... then there's another screenful, then another, then another...

Now don't take me wrong. *Classic Invaders* is OK. The Invaders are now brightly coloured - quite smart in fact - and the game plays well enough. But to my mind, they're not green enough, not loud enough, and you don't lose money every time you make a mistake.

But if you've had your head in a bucket for seven years, just bought a computer and want to know what started it all; this is it.

**Program Voodoo Rage Type** Arcade **Type Amstrad Price** £1.99 **Supplier** Antarctic, Arctic Computing, Main St, Brandesburton, Yorkshire YO25 8RL.

**Program Kane Type** Adventure **Micro Amstrad Price** £2.99 **Supplier** Mastertronic, 8-10 Paul St, London EC2.

**Program Rad Zone Type** Arcade **Micro Amstrad Price** £1.99 **Supplier** Mastertronic, 8-10 Paul St, London EC2.

**Program Turbo Esprit Type** Arcade **Micro Amstrad Price** £8.95 **Supplier** Durell, Castle Lodge, Castle Green, Taunton, Somerset TA1 4AB.

## ATARI

**Program King's Quest Type** Adventure **Micro Atari ST Price** £29.95 **Supplier** Mirrorsoft, Purnell Book Centre, Paulton, Bristol BS18 5LQ.

Pick of the week

**Program Molecule Man Type** Arcade **Micro Spectrum Price** £1.99 **Supplier** Mastertronic, 8-10 Paul St, London EC2.

**M**astertronic is just about to enter the big time. Three titles in the CES Hall of Fame this season indicates that the American side of things is just about to take off, and there are some cracking titles in the pipeline for release soon.

*Flash Gordon* is one to look out for in August - *Ninja* is promised to be the martial arts game to beat all martial arts games. And next month (you read it first here folks!) an Amstrad version of the arcade hit of '86 *Gauntlet*... to be named *Storm*. These are the guys that all the other budget software houses have to beat... and you can see why with something like *Molecule Man*.

This one has you controlling something that looks a bit like the bubble in all the *Corona* adverts, around 256 *Knight Lore* type screens. The single colour display and varied graphics are both done in a workman-like fashion.

The scam is that you are stuck in this maze/planet/

## Molecule Man

whatever, deadly radiation all about you, and must collect 16 electric circuits in order to enable you to teleport off.

To aid you, you need pills (which ward off the effects of the rays, for a time) and bombs (no explanation needed - what would you do with a bomb?), both of which can be obtained from dispensers dotted around the place - if you have a coin... which in turn are found, etc, etc.

This makes it an acceptable enough race-against-time arcade adventure - and at £1.99 would have more than enough to recommend it to lovers of this genre.

The surprise comes on side B of the tape - a maze designer/editor that allows you to alter the existing maze or create your own, edit each and every screen to make it harder... or maybe easier (ha, ha)... you name it, you can alter it, save it to tape and then play your own version of the game. Or challenge a friend to play your version. Or invert a completely new game around the existing character and objects. This must increase the playing life of a game at least five-fold.

**Program The Black Cauldron Type** Adventure **Micro Atari ST Price** £29.95 **Supplier** Mirrorsoft, Purnell Book Centre, Paulton, Bristol BS18 5LQ.

## BBC

**Program Office Male Type** Utility **Micro BBC B Price** £12.00 (tape or disc) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Office Master Type** Utility **Micro BBC B Price** £25.00 (tape or disc) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8.

**Program BBC Money Management Type** Utility **Micro BBC B Price** £12.95 (disc only) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8.

**Program Woks! Type** Arcade **Micro BBC/Electron Price** £1.99 **Supplier** Arctic Comput-

ing, Main St, Brandesburton, Yorkshire.

**H**ow's this for a plot? The Emperor has confiscated everyone's woks - because he thinks they are eating too much fatty food - and placed them in strongrooms with lots of ladders and guards.



machine in some dark corner of an under-age pub, trying to make half a pint of weak lager shandy last all night, feeding

You as the people's champion must rescue them. Does this win the prize for the thinnest and silliest disguise for a collect and dodge game or what?

Still, the graphics are chunky BBC, but colourful, and the gameplay is diverting enough for a short while ('Collect and dodge' with a touch of *Amidar*, I should have said).

Unpretentious, undemanding and cheap. You could do worse.

**Program BBC Life and Business Organiser Type Utility Micro BBC B Price £19.95** (disc or Rom) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Statutory Sick Pay Package Type Utility Micro BBC B Price £39.95** **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon, EX8 4RS.

**Program The Great Wall Type Arcade Micro BBC B Price £1.99** **Supplier** Antarctic, Arctic Computing, Main St, Brandesburton, Yorkshire YO25 8RL.

## C16/Plus 4

**Program Runner Type Arcade Micro C16/Plus4 Price £1.99** **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program Shark Type Arcade Micro C16/Plus4 Price £1.99** **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program Baby Berks Type Arcade Micro C16/Plus4 Price £1.99** **Supplier** Alpha Omega, CRL Group, 9 Kings Yard, Carpenters Rd, London E15.

**Program The Exploits of Fingers Malone Type Arcade Micro C16/Plus4 Price £1.99** **Supplier** Mastertronic, 8-10 Paul St, London EC2.

**Program Street Olympics Type Arcade Micro C16/Plus4 Price £1.99** **Supplier** Mastertronic, 8-10 Paul St, London EC2.

## COMMODORE 64

**Program Nexus Type Arcade Adventure Micro Commodore 64 Price £9.95** (tape) £12.95 (disc) **Supplier** Nexus Productions, DSB House, 30 High St,

Beckenham, Kent BR3 1AY.

**Program Return of the Space Warrior Type Arcade Micro Commodore 64 Price £1.99** **Supplier** Alpha Omega, CRL House, 9 Kings Yard, Carpenters Rd, London E15.

I must be the time of the year, but there's a lot of so-called 'budget' titles around right now. My theory is that this is supposed to lure school kids back to their computer during the summer - when they should, naturally, be out annoying the neighbours. Still, this is an offering from CRL's budget label, Alpha Omega, called *Return of the Space Warrior*. "It had to be a nightmare," says the cassette inlay; and true enough, it is - namely a fairly lame version of *Joust*.

*Joust*, you might remember, was a highly original game in its time. Played on a screen



with downwards gravity (and strategically place platforms for you to rest on) you played a knight aboard a gryphon-like beast, armed with a lance. You pressed 'fire' to flap your beast's wings (and therefore gain height) which was of great importance in the game, as if you collided with an enemy, you would die if your lance was lower than his.

Back at *Space Warrior*, gone are the Gryphons (in come ovalspheres - blobs to you) and the lances and the excellent two player option in which you could play simultaneously on screen with a friend. What you are left with is a game which admittedly can get quite fast - but is totally lacking in visual appeal and atmosphere. Mediocre budget fare I'm afraid.

**Program Bump Set Spike Type Arcade Micro Commodore 64**

**Price** £1.99 **Supplier** Mastertronic, 8-10 Paul St, London EC2.

## SPECTRUM

**Program Spike Type Arcade Micro Spectrum Price £1.99** **Supplier** Firebird Software, Wellington House, Upper St Martins Lane, London WC2.

**Program Helicopter Type Arcade Micro Spectrum Price £1.99** **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program Wild Bunch Type Arcade Micro Spectrum Price £1.99** **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program The Boggit Type Adventure Micro Spectrum Price £7.95** **Supplier** CRL Group, 9 Kings Yard, Carpenters Rd, London E15.

**Program Dragon of Notacare Type Adventure Micro Spectrum Price £2.50** **Supplier** David Edgar, 1 High Parksall, Erskine, Scotland PA5 7HY.

**Program The Master Type Arcade Micro Spectrum Price £1.99** **Supplier** Antarctic, Arctic Computing, Main St, Brandesburton, Yorkshire YO25 8RL.

**Program Office Master Type Utility Micro Spectrum Price £15.00** (tape) £17.50 (microdrive) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Conquest Type Arcade Micro Spectrum Price £2.99** **Supplier** Mastertronic, 8-10 Paul St, London EC2.

**Program Ninja Master Type Arcade Micro Spectrum Price £1.99** **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

Now you'd expect a program entitled *Ninja Warrior* to be all gore, broken bones and white pyjama tops, wouldn't you?

Well, no... you'd be wrong - for a start we all know that the sneaky Ninja, 'a breed of warriors feared by all...' only ever wear black, so as to sneak up on unsuspecting passers-by and generally do the dirty on them in the depths of the night. And also, in this martial arts

epic, the only blood ever spilt is your own.

It is the annual Ninja games - and this is your big chance to impress the elders. Yup, Bruce Lee finally meets Daley



Thompson. There are four tests in all. The 'punch the approaching arrows' test. The 'chopping the log in half' test (this is a hammer on two keys job). The 'deflect the stars' test (high, middle or low). Finally a 'zap the cans with the blowpipe' test. Like all the other sports simulations, you are given three chances to attain a qualifying score to pass on to the next test.

The graphics (mostly black on yellow) are not really that good, the gameplay isn't that good and the sound consists of two sampled screams which you will soon get tired of.

Put it this way; despite all the chopping and parrying, this is not another *Thrust*.

**Program Pentagram Type Arcade Micro Spectrum Price £9.95** **Supplier** US Gold, Unit 10, The Parkway Industrial Centre, Heneage St, Birmingham B7.

## QL

**Program Life and Business Organiser Type Utility Micro QL Price £19.95** **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Executive Adventure Type Adventure Micro QL Price £12.95** **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Dragonhold Type Arcade Micro QL Price £19.95** **Supplier** Rubicon Computer System, 11 Bannardale Rd, Sheffield, S7 2DJ.

## Top Twenty

- |    |     |   |                 |
|----|-----|---|-----------------|
| 1  | (-) | World Cup Carnival (Spectrum, Amstrad, C16) | US Gold         |
| 2  | (3) | Kik Start (Spectrum, C64, C16, Atari)       | Mastertronic    |
| 3  | (5) | Batman (Spectrum, Amstrad)                  | Firebird        |
| 4  | (2) | Formula One Simulator (Various)             | Mastertronic    |
| 5  | (1) | Thrust (C64)                                | Firebird        |
| 6  | (7) | International Karate (Spectrum, C64)        | System 3        |
| 7  | (-) | Cauldron 2 (C64)                            | Palace          |
| 8  | (4) | Commando (Various)                          | Elite           |
| 9  | (6) | Spindizzy (Spectrum, C64, Amstrad)          | Electric Dreams |
| 10 | (8) | Rock 'N' Wrestle (Sp, C64, Am)              | Melbourne House |



Biggles flies in at 16

- |    |      |                                    |                |
|----|------|------------------------------------|----------------|
| 11 | (15) | Saboteur (Spectrum, C64, Amstrad)  | Durell         |
| 12 | (9)  | Bomb Jack (Spectrum, C64, Amstrad) | Elite          |
| 13 | (-)  | Knight Tyme (Spectrum)             | Mastertronic   |
| 14 | (16) | Last V8 (C64, Amstrad, Atari)      | Mastertronic   |
| 15 | (14) | Vegas Jackpot (Various)            | Mastertronic   |
| 16 | (-)  | Biggles (C64)                      | Mirrorsoft     |
| 17 | (-)  | One Man And His Droid (Various)    | Mastertronic   |
| 18 | (-)  | Ninja Master (Spectrum)            | Firebird       |
| 19 | (-)  | Green Beret (Spectrum, C64)        | Imagine        |
| 20 | (-)  | Heavy On The Magik (Spectrum)      | Gargoyle Games |



Straight in at number one

## NEXT WEEK

### ● CES report

The Summer Consumer Electronic Show in Chicago is the world's biggest exhibi-



## Top Tens

### Amstrad

- |    |      |                              |
|----|------|------------------------------|
| 1  | (-)  | Batman (Ocean)               |
| 2  | (2)  | Winter Games (Eppur/US Gold) |
| 3  | (5)  | Commando (Elite)             |
| 4  | (1)  | Get Dexter (PSS)             |
| 5  | (-)  | World Cup Carnival (US Gold) |
| 6  | (-)  | Boulder (Gremline)           |
| 7  | (4)  | Elite (Firebird)             |
| 8  | (4)  | Last V8 (Mastertronic)       |
| 9  | (-)  | One Simulator (Mastertronic) |
| 10 | (10) | Into Oblivion (Mastertronic) |



Thrust - knocked off the top

All figures compiled by Gallup/Microscope

### Commodore 64

- |    |      |                               |
|----|------|-------------------------------|
| 1  | (-)  | World Cup Carnival (US Gold)  |
| 2  | (1)  | Thrust (Firebird)             |
| 3  | (2)  | Int Karate (System 3)         |
| 4  | (-)  | Cauldron 2 (Palace)           |
| 5  | (6)  | Biggles (Mirrorsoft)          |
| 6  | (9)  | Saboteur (Durell)             |
| 7  | (3)  | Spindizzy (Electric Dreams)   |
| 8  | (-)  | Bump Set Spike (Mastertronic) |
| 9  | (7)  | One Simulator (Mastertronic)  |
| 10 | (10) | Gold (Ariolasoft)             |

### Atari

- |    |      |                               |
|----|------|-------------------------------|
| 1  | (-)  | Kik Start (Mastertronic)      |
| 2  | (1)  | Vegas Jackpot (Mastertronic)  |
| 3  | (3)  | Last V8 (Mastertronic)        |
| 4  | (8)  | One Man & His Droid (Mironic) |
| 5  | (4)  | New York City (American)      |
| 6  | (9)  | Scotter (American)            |
| 7  | (7)  | Shamus (Americana)            |
| 8  | (9)  | Fighter Pilot (Digital Int)   |
| 9  | (2)  | Action Biker (Mastertronic)   |
| 10 | (10) | Arcade Classics (Datasoft)    |

### BBC

- |    |      |                                |
|----|------|--------------------------------|
| 1  | (1)  | Commando (Elite)               |
| 2  | (-)  | Bruce Lee (US Gold)            |
| 3  | (3)  | Tennis (Bugbyte)               |
| 4  | (8)  | Jack Attack (Bugbyte)          |
| 5  | (-)  | Jet Set Willy (Ware Projects)  |
| 6  | (2)  | Winter Olympics (Tynesoft)     |
| 7  | (-)  | Comp. Hits 10 (Beau Jolly)     |
| 8  | (-)  | Galactic Patrol (Mastertronic) |
| 9  | (10) | Combat Lynx (Durell)           |
| 10 | (-)  | Death Star (Superior)          |

### Spectrum

- |    |     |                               |
|----|-----|-------------------------------|
| 1  | (-) | World Cup Carnival (US Gold)  |
| 2  | (1) | Batman (Ocean)                |
| 3  | (-) | Knight Tyme (Mastertronic)    |
| 4  | (3) | Rock 'N' Wrestle (Mel House)  |
| 5  | (4) | Green Beret (Imagine)         |
| 6  | (-) | Ninja Master (Firebird)       |
| 7  | (7) | Heavy On The Magik (Gargoyle) |
| 8  | (9) | Bomb Jack (Elite)             |
| 9  | (8) | Fireman (Mastertronic)        |
| 10 | (-) | Quazatron (Hewson)            |

### ● Language series

Next week we focus on Pascal, the highly structured language which is rapidly becoming an industry standard.

### ● Soundcheck

Don't miss the next in Mark Jenkins' new regular music column.

### ● Plus . . .

Win a copy of the forthcoming release from Nexus in our Arcade Action competition.

## The Hackers



# Your key to communications!



**PRESTEL**

FREE Electronic Mail . . . International  
Telex . . . 10 National Chatlines (Interactive  
Bulletin Boards) . . . 70,000 users across the  
UK . . . Teleshopping . . . Multi-User  
Interactive Strategy Games

Instant computer news . . . Hardware and  
software reviews . . . Technical features . . .  
Hints and tips

FREE and discounted quality software to  
download direct to your micro—**24 hours a  
day**

300,000 pages of information on the huge  
Prestel database

**for just 20p a day**

*Micronet 800—  
The ultimate  
peripheral*

Micronet 800  
8 Herbal Hill, London EC1R 5EJ  
Telephone: 01-278 3143

To: Micronet 800, 8 Herbal Hill, London EC1  
Please send me a brochure on Micronet 800

Name

Address

Telephone No.

Age  Micro

POP·CW 26 86





## Music and micros – getting started

*In the first of a new regular series, Mark Jenkins looks at the potential for making music with your micro*

**M**icro computers turn their hands quite readily to music – after all, music is only a mathematically-related series of sounds occurring in time. Of course, the best music has elements which can't be reduced to mere mathematics, so even if the computer is your chosen instrument some creativity is essential.

In the not-too-distant future it should be possible to choose a computer or synthesiser as an instrument on which to take music exams. Certainly the pop world has rushed to employ computer techniques, with the academic world lagging far behind (with the exception of one or two notables such as Dr Peter Zinovieff, the inventor of the British EMS range of synthesisers many years back).

Many of the computers used in the music industry aren't recognisable as such – they're packaged as musical instruments so that musicians can use them. But over the last couple of years it's become obvious to instrument designers that they can save a lot of effort by using a domestic micro such as the Commodore 64, Atari, Apple, IBM PC or Macintosh (well, these are all domestic micros in the States!) to perform basic functions such as memory storage and data manipulation.

The computer music explosion began a couple of years ago when the Midi standard was introduced for processor-controlled instruments. Sending musical messages in a manner not a million miles away from the RS232 or other computer standards, Midi can be handled by a small micro with a suitable interface – so now Midi keyboards, drum machines, sequencers, sound samplers, computers and even guitars can be interconnected to give powerful compositional facilities.

So how can the amateur musician with a micro compete with the professional with access to a million-pound studio? You can certainly record the sounds of a C64 or BBC B (arranged with an inexpensive software package), but a hardware keyboard add-on will help you play more fluently. Improved voice modules such as Commodore's Sound Expander will give you more professional sounds similar to those from the £1000 Yamaha DX7. And sound samplers such as those from Datal,

Commodore and 2-bit Systems will allow you to go some way towards reproducing the effects of the Mirage and Prophet keyboards (costing £1,500 and £2,000 respectively) and even of the Fairlight computer musical instrument (a snip at £55,000).

If you want to spend a little money on Midi-based synthesisers, the excellent Casio CZ-101 is the best bet at only £245. Over and above that, there are fine keyboards available from Roland (the analog Alpha Juno 1 at £550), from Yamaha (the digital synthesiser DX100 at £349) and many others.

Ironically, the micro musician can now use exactly the same equipment as a top professional for very little outlay. If you already have a BBC B, a few hundred pounds will buy you the UMI-2B, a hardware/software Midi sequencer package used by Blancmange, A-Ha, Erasure and many others. Tangerine Dream use Commodore-based packages from C-Lab and Steinberg, while Jan Hammer makes up those dirty drum machine sounds for *Miami Vice* on an Apple-based Eprom programmer. In the States, the Hybrid Arts packages for the Atari 130XE are tremendously popular, and although we have yet to hear of a Spectrum or an Electron in the charts, their time will surely come (there's already a powerful Midi interface and software package for the Amstrad).

The attractive aspect of micro-based music making is that you can start (very) cheaply and build up as your interest

increases. The software packages will help you play along the way (giving easily understood graphics displays, rounding off your timing, helping you create new sounds and so on) and before long you can be in a position to create highly professional sounds. At that stage, your own creativity and imagination have to take over...

In this column we'll be looking at every



Heaven 17

available music package coming on to the market, whether it's for a micro's on-board sound chip, for use with hardware add-ons, or for control of cheap Midi synthesisers via a suitable interface. If you have any cassettes of your own music we'll gladly have a listen, and we'll be happy to answer any questions on micro-based music. Stick with this column and in a couple of years you may be the new Heaven 17.



# SUBSCRIBE TO

**POPULAR**  
**Computing**  
**WEEKLY**

and we will send you free of charge a **Popular Computing Weekly** binder complete with logo and holding 13 (3 months worth) of your favourite computer weekly.

Please enter my annual subscription to Popular Computing Weekly at £19.95 U.K. (£37.40 overseas), and send my free Popular Computing Weekly Binder.

☐ I enclose a cheque made payable to Sunshine Publications Ltd.

☐ Please charge my Visa/Access card

No:

Expiry Date:

Name:  Address:

Which computer do you use?

Return this form together with your payment to: PCW Subs., 12/13 Little Newport St., London WC2H 7PP (Please allow 21 days for delivery).

PD806A

## SUBSCRIBE

to **Popular Computing Weekly** and receive a free **PCW** binder holding 13 issues of your favourite weekly.

Please enter my subscription to PCW for one year at **£19.95 UK, £37.40 Overseas.**

Name:

Address:

Return to PCW subs, 12-13 Little Newport St., London WC2H 7PP

16PD029HA

## CUT PRICE SOFTWARE

|                    | OUR       |                     |             |                   |             |
|--------------------|-----------|---------------------|-------------|-------------------|-------------|
| SPECTRUM           | RRP PRICE | COMMODORE           | Cass Disc   | AMSTRAD           | Cass Disc   |
| Rock & Wrestle     | 8.95 6.50 | Popeye              | 5.50 N/A    | Laser Basic       | 11.00 14.95 |
| Superbow           | 9.95 6.95 | Bombjack            | 8.95 10.00  | Zoids             | 6.50 N/A    |
| Way of the Tiger   | 9.95 6.95 | Empire              | 6.95 N/A    | Transact          | 3.99 N/A    |
| Split Images       | 7.95 5.50 | World Cup Carnival  | 7.25 10.00  | Shogun            | 6.95 10.95  |
| Bombjack           | 7.95 5.50 | Bouncers            | 6.95 N/A    | Invictus          | 5.99 N/A    |
| Starstrike         | 7.95 5.50 | Sold a Million II   | 6.90 10.00  | Shogun            | 6.95 10.00  |
| RMS Titanic        | 9.95 6.95 | Shogun              | 6.95 N/A    | Sorcery II        | N/A 10.95   |
| Price of Magic     | 9.95 6.95 | Zoids               | 5.50 N/A    | Way of the Tiger  | 6.95 10.95  |
| Pentagram          | 9.95 6.95 | Titanic             | 6.95 10.00  | Elite             | 11.00 17.00 |
| Alien Highway      | 9.95 6.95 | Silent Service      | 6.95 10.00  | Sold a Million II | 6.95 10.00  |
| The Planets        | 9.95 6.95 | Spindizzy           | 6.99 10.00  | Alien Highway     | 6.50 9.50   |
| Sold a Million II  | 9.95 6.95 | Freeze Frame 2 Cart | 35.95       | Mini Office II    | 12.95 14.95 |
| Climbanger         | 7.95 5.50 | Doomdark a Revenge  | 6.95 N/A    | Saboteur          | 6.50 10.00  |
| Spindizzy          | 9.95 6.95 | Price of Magic      | 6.95 10.00  | Bombjack          | 6.95 N/A    |
| Heavy on the Magic | 9.95 6.95 | Y                   | 6.50 N/A    | Monopoly          | 6.95 10.95  |
| Sam Fox            | 7.95 5.50 | Starquake           | 6.50 N/A    | Scrabble          | 6.95 10.95  |
| Bouncers           | 9.95 6.95 | Uridium             | 6.50 10.00  | Winter Games      | 6.95 10.95  |
| World Cup Carnival | 9.95 7.25 | Golf Construction   | 9.95 11.95  | Tau Citi          | 6.95 10.95  |
| Batman             | 7.95 5.50 | Green Beret         | 5.50 N/A    | Fairlight         | 6.95 10.95  |
| Turbo Esprit       | 8.95 6.50 | Superbow            | 6.95 N/A    | Batman            | 6.50 N/A    |
| Quazatron          | 8.95 6.50 | Biggies             | 6.95 N/A    | Spindizzy         | 6.95 10.95  |
|                    |           | Game Maker          | 11.95 14.95 | Get Dealer        | 6.95 N/A    |

Large selection of AMSTRAD disk s/w available at discount prices. AMSTRAD blank disks £39.95 per box of 10. Large range of CBM41 disks available. This is just a small selection from our stocks. Please ring for more details P&P included. Overseas orders add 75p per tape. For Mail Order please send Cheques/PO payable to CPS Visa/Access Card orders by phone welcome, too.

**CUT PRICE SOFTWARE, Unit 6, Store House, Riverway, Harlow, Essex CM20 2DW**  
Tel: (0279) 24433 (24hr ansaphone) 23PD013



**SPACE**  
**SOUL**  
**Formula One**  
**TAU**  
**CETI**  
**THE ROCKY HORROR SHOW**

Computer Games is a volatile business. You've got to make the right decisions and work with the right people to be a success. At CRL we've been doing that longer than most Companies have been in business. If you've got a program, you'll want the worldwide distribution we take for granted and the Software Development back-up we pride ourselves in. If you're a designer, a programmer or both, get in touch.



CRL Group Plc, CRL House, 9 Kings Yard, Carpenters Road, London E15 2HD Tel: 01-533 2918



# WD Software

## For the SINCLAIR QL:

**JOSS** £15 on mdv or 5 1/4" flp, £17 on 3 1/2" flp

Forget syntax errors and mistyped names in file commands! Just move a cursor and press SPACE. Cursor keys or joystick allows access to up to 8 microdrives and all the discs your interface will handle, with up to 150 files on each. Scroll & print directories, COPY, DELETE or PRINT any file, select TV or Monitor mode before LOADING/RUNNING a program. Use keyboard only to set date or label a medium. Easy to use with Psion or other software. No silly icons to learn — JOSS will tell you what it's doing! Mass copying/printing utilities and programmer's toolkit. Specify disc size, tracks and interface (CST, Cumana, PCML, MicroPeripherals) or microdrive only.

**RefQL7** £11 on 2 mdvs or 1 3/2" flp, £9 on 5 1/4" flp.

For use with ARCHIVE 2, contains 1300 useful references and a search/print program. Find programs, articles and reviews buried in the magazines on your shelf! Cheap updates of earlier edition.

**Mdv extension cable (8')** £5.50. Add ZX Microdrives to your QL Joystick Adaptor £4.99

**For the QL, Spectrum (all), BBC & Electron:**  
**WD Morse Tutor** £4 cassette, £6 mdv or 5 1/4", £8 3 1/2".

Teach yourself to read Morse Code. From absolute beginning to 18 words/minute. Feedback on screen or printer. Random letters, numbers or mixed, 100 random sentences, many helpful features include phonetic speech via Currah Micro-Speech (Spectrum). Discs unsuitable for BBC B+

## For the Sinclair Spectrum (48/128k):

**Wordfinder 2** £8 cassette

16,000 word vocabulary, 3 to 10 letters long.

**Wordfinder 3** £10 on mdv or 5 1/4" disc, £12 on 3 1/2".

19,000 word vocabulary, 3 to 12 letters long. Solves anagrams and missing-letter words. Very fast machine code. Update Wordfinder 1 for £2.

**Spectrum disc versions** are Opus, TR (Beta) and SPD1.

We export hardware and third-party software. Ask for lists.

### Payment

In advance, in STERLING or British bank branches, International Giro, Postal Order or ACCESS/MasterCard. Add £1 outside Europe for AIRMAIL.

### from:

WDSOFTWARE (PCW), Hilltop, St Mary, Jersey, C.I.  
Tel 0534 81392

## COMPLETE DESIGN & PRINT SYSTEM

FOR ZX SPECTRUM 48K/PLUS

### DESIGNER

DESIGN UTILITY FOR SCREENS AND PRINTING

It will do a full A4 print (52 screen lines) with one command. This ad is 50 lines. It allows full colour control on-screen.

Supplied with 3 fonts and 100 udgs.

### CHARACTER DESIGNER

IS THIS THE BEST AROUND

Design udgs AND characters! It offers TRUE inverse, select load address or the ones for DESIGNER. A special option allows printing out of load address, POKEs for character sets, and filename. It comes with 5 fonts, 5 double-height fonts, and 2 udg sets for use with or without DESIGNER.

### DUMPY

BY BRADWAY SOFTWARE. A UTILITY FOR DESIGNING SCREENDUMP SOFTWARE

Very easy to use, it produces machine-code software for most Epson-compatible printer and interface combinations, with many height, width and density options.

All 3 programs are menu-driven and microdrive-compatible.

|                    |       |
|--------------------|-------|
| DESIGNER           | £8.95 |
| CHARACTER DESIGNER | £4.50 |
| DUMP               | £5.00 |

SAVE £1.50 BY BUYING

ALL 3 PROGRAMS FOR £16.95

GAP SOFTWARE, 17 ST. JOHN'S TCE, LONDON E7

8BX

01-552 5452.

22PD1

SPECTRUM — AMSTRAD — COMMODORE

## NOBLES COMPUTER REPAIRS

\* Repairs carried out by our own engineers on site.

\* All repairs carry a 4 MONTH GUARANTEE

For estimates phone or send your computer to NOBLES.

Spectrum Plus ..... £16.95 inc parts  
post and pack

Commodore 64/VIC 20 ..... from £9.95 plus  
parts

BBC ..... from £18.95 plus  
parts

Also repair specialists for Amstrad and MSX computers

NO HIDDEN CHARGES

## ★ SPECIAL OFFER

5 FREE GAMES WORTH £25

with each Spectrum repair Trade/School and Club discounts arranged.

\*For free, no obligation estimates phone or send your computer to NOBLES for the fastest, cheapest repairs in ESSEX.

### NOBLES

14-17 Eastern Esplanade

Southend-on-Sea

Essex

0702 63377/8

63336/7/8/9

7 days a week, 24-hour Answering Service

P1850

SPECTRUM — AMSTRAD — COMMODORE

## FAULTY SPECTRUM?

As you are probably aware from press reports Sinclair Computers no longer have a repair department.

Our computer repair workshop has been an OFFICIAL Sinclair Repair Depot for the past six years and we are pleased to announce that we will continue to do your out of guarantee repairs as in the past. Send your faulty computer DIRECT

|                      |                  |
|----------------------|------------------|
| SPECTRUM .....       | £18.75 inc parts |
| ZX81 .....           | £11.50 inc parts |
| 16K RAM .....        | £9.95 inc parts  |
| MICRODRIVE .....     | £15.95 inc parts |
| INTERFACE 1-11 ..... | £18.75 inc parts |

CALL OR SEND WITH CHEQUE OR P.O.

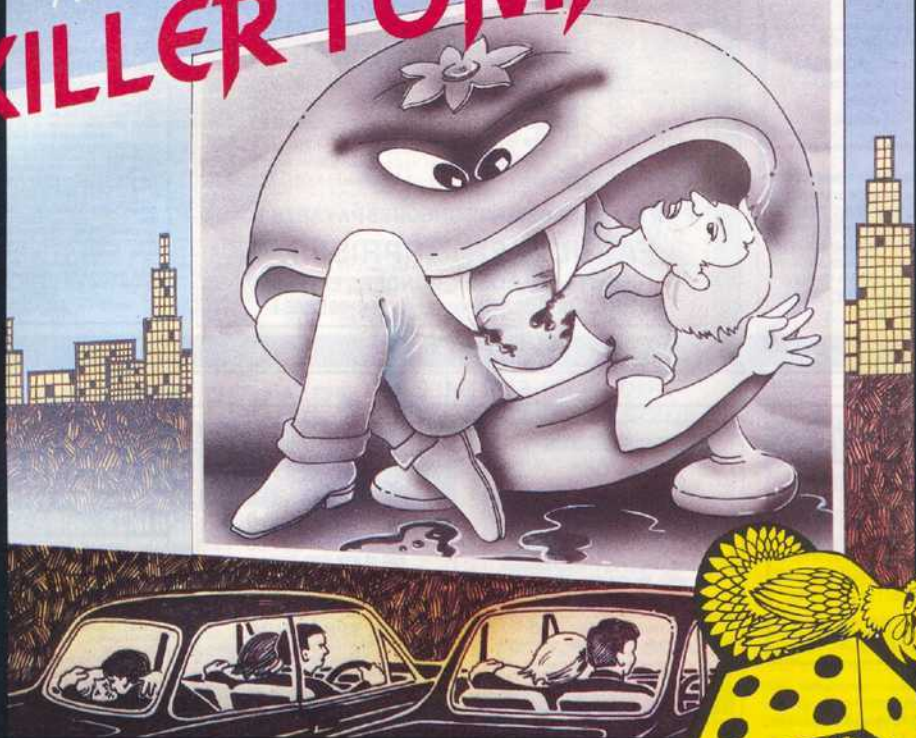
T.V. SERVICES  
OF CAMBRIDGE LTD  
FRENCH'S ROAD  
CAMBRIDGE CB4 3NP  
Tel: 0223 311371

18TV



Nominated for the "Worst Vegetable Movie of all Time"

# ATTACK OF THE KILLER TOMATOES



## Squash 'em or be squashed

Based on one of those all-time lows in the world of movie making that were actually nominated for a Golden Turkey Award, the Attack of the Killer Tomatoes squelches on to your screens courtesy of Global Software

It's a bit of a sauce, really. There's Wimp Plasbott, working away in the PuraTom (tm) processing plant, when suddenly, several hundred killer tomatoes turn on you.

Rotten, aren't they?

All you have to do is to help Wimp keep the Pizza Parlours well supplied with purée while attempting to hammer the reds before they can do the same to you.

Sounds absolutely killing, doesn't it?

But can you stand the sight of rivers running red? And have you got the bottle for it?

If you haven't, hard squish!

Available for: Spectrum 48K, all Amstrad CPC machines and all MSX 64K machines

Available through all good dealers

£7.95

Send cheques & P.O.'s to:



**GLOBAL  
SOFTWARE**

PO Box 67, London SW11 1BS.

Tel: 01-228 1360







# The 1st choice EXPRESS SPECTRUM, BBC and COMMODORE REPAIRS!

**SOFTWARE**  
RRP £24.00 FREE WITH  
EVERY REPAIR\*

**WHY PAY HIGH  
'FIXED'  
PRICES**

Spectrum  
repairs between  
£9 and £20

BBC repairs  
between  
£14 and £45

Commodore  
repairs between  
£14 and £35

\*Spectrum only

(We do not charge you for our  
fancy premises by charging  
high fixed prices!)

Reputations take time to build,  
we have been repairing ZX81's,  
Spectrum, QL's, Apples and  
BBC's professionally, for 2 1/2  
years - who is coming second?

In all U.K. with White u-Wait repair  
with INTERNATIONAL repair service

to charge LOW PRICES for the smaller  
repairs! (e.g. £9 for keyboard faults)

FOR LOW PRICES - "My computer  
blew recently, I took it to MANCOMP,  
who fixed it in 8 minutes and for less  
than £10! They are local, 'clued up',  
and 'blindingly efficient' 4 HEATONS  
DIGEST.

FOR PROFESSIONALISM - "Of all the  
repair companies 'Senior User' spoke  
to, MANCOMP seemed the MOST  
PROFESSIONAL when it came to advice  
and a helpful attitude" AUG 85.



FOR HONESTY - "We let you watch  
your computer being repaired and if  
there is nothing wrong with it, we will  
tell you!"



FOR REPUTATION & HELPFULNESS -  
"I have come across a firm that will be  
more than willing to advise you as to  
how to remedy your problems. They  
are called MANCOMP and as well as  
repairing faulty computers, are also  
quite willing to discuss your problems  
with you and offer reasonably cheap  
and more importantly CORRECT  
CURES" Phil Rogers POPULAR  
COMPUTING WEEKLY JAN 85.



FOR SPEED - "One firm at least can  
effect any necessary repairs over the  
counter in 45 minutes. Based in  
Manchester, MANCOMP can offer what  
is arguably the FASTEST  
turnaround in the business to personal  
callers" CRASH Magazine JUNE 1985.



THIS IS WHY Spectrum users from  
London, Cornwall, Scotland,  
Birmingham, Liverpool, Coventry,  
Leicester, Glossy, L.D.M., etc.  
AUSTRALIA, AUSTRIA, BELGIUM,  
EGYPT, EIRE, GERMANY, HOLLAND,  
KUNAIT, NORWAY, AUSTRIA, PAPUA

NEW GUINEA, SAUDI ARABIA,  
SWEDEN, SWITZERLAND and  
ZIMBABWE - send their Spectrums to  
MANCOMP for repair!  
24 HR. TURNAROUND - NO-QUIBBLE  
GUARANTEE. NO HIDDEN COSTS.

Because we repair hundreds of  
computers every week, we are  
able to pass on our 'component-  
buying discount' to YOU in  
lower prices... Z80A cpu  
£1.50, 4116 S0p, Upgrade  
fitted £18.95  
- we bring down the prices for  
repairs and components!

(We may refuse to rewire  
computers suffering from  
attempted D.I.Y. repairs!)

Every parcel sent by  
Royal Mail Receipted Post and insured  
for return journey!  
(For next day delivery include £1.50  
extra).

(Securion by prior arrangement).  
On site maintenance for Apple,  
IBM's and most makes of printers  
also available.

Guaranteed 4hr response!  
WHY DELAY - OUR ESTIMATES ARE  
FREE AND WITHOUT OBLIGATION IF

YOU DO NOT LIKE OUR ESTIMATE,  
WE WILL RETURN THE COMPUTER  
AND REFUND THE POSTAGE INCURRED



**MANCOMP LTD**  
(Dept. PCW23)

Printworks Lane, Levenshulme,  
Manchester M19 3JP

Phone 061-224 1888.  
OR 061-224 9888.

OPEN MON - SAT 9am to 7pm



What we do today...  
others do tomorrow!

## COMPUTER REPAIRS

ALL MACHINES DESPATCHED  
WITHIN 72 HOURS OF RECEIPT

For example:

|                        |        |
|------------------------|--------|
| Spectrum Plus.....     | £17.00 |
| 16-48 RAM Upgrade..... | £25.00 |
| ZX81.....              | £12.50 |
| Interface I.....       | £18.00 |
| ZX Microdrive.....     | £16.50 |
| BBC B.....             | £25.00 |

(All prices include parts, VAT, labour,  
return postage insured, and full  
warranty)

For a fast and reliable service send  
machine, brief description of fault and  
cheque or PO for relevant amount to  
the experts:

## CAPITAL COMPUTER SERVICES

Dept P  
Unit K2, Cardiff Workshops  
Lewis Road, East Moors  
Cardiff CF1 5EG  
Tel: Cardiff (0222) 461801

We also service Acorn, Dragon, Commodore, Lynx  
and Cric systems. Please telephone for a quote.

12P/L8

## BBC SPECTRUM REPAIRS

\* Spectrum repairs £18.50 inc. parts in-  
surance and p.p.

\* BBC B repairs £18.50 + parts, insur-  
ance and p.p.

Send your computer with cheque or P.O.  
for £18.50 and description of fault to:

**SUREDATA (PCW)**

Computer Service  
45 Wychwood Avenue, Edgeware,  
Middx.

Tel: 01-851 0124

23P/L3

## CHILTERN COMPUTER SERVICE

FOR FAST RELIABLE REPAIR SERVICE

SPECTRUM..... £18.00  
WE ALSO REPAIR CBM 64 & BBC, VIC 20, ORIC,  
AMSTRAD, PRINTERS & DISC DRIVES

Ask for details.  
We give 3 months warranty on replaced parts.  
Send computer with details of fault and cheque  
made out to:

**CHILTERN COMPUTER CENTRE**  
98/100 HIGH TOWN ROAD, LUTON, BEDS  
Tel: 0582 455684

Diversex enquiries welcome

PL2B1

## COMMODORE Repairs by Commodore

approved engineers. Vic 20 Modulators  
£6.50. Vic 20 from £14.50. CBM64 etc. for  
more details write or tel: G.C. Bunce &  
Son, 36 Burlington Road, Burnham,  
Bucks SL1 7BQ. Tel: 06286 61696.

## COMPUTER REPAIRS NOW IT'S YOUR CHOICE

|           | Fixed Price | Quotation      |
|-----------|-------------|----------------|
| SPECTRUM  | £19.95      | £9.95 + parts  |
| DRAGON    | £29.95      | £11.95 + parts |
| BBC       | £34.95      | £15.95 + parts |
| COMMODORE | £34.95      | £15.95 + parts |

- Guarantee: Six Months
- Extras: None - Post, VAT & Insurance inc.
- Quote: Mail Computer & Daytime Contact Phone No.
- Fixed Price: Mail Cheque + Computer
- Range: We also repair IBM, Apple, Osborne, Sirius, Apricot + wide range of Peripherals.

Call (0423) 501679 Anytime  
**OMNICRON LTD,**  
16 Haywa St.  
Harrogate HG1 5BJ

PL999

## LONDON COMPUTER REPAIR CENTRE

- \* Spectrum, Commodore, BBC, Atari, Amstrad etc.
- \* Low cost repairs from £12.00
- \* Collection & delivery optional
- \* Used Micro's bought, sold, exchanged.

Call NIGEL: 01-863 7166

## MICRO SUPPORT

Unit 3, 15 Springfield Road,  
Harrow, Middx, HA4 1QF.

13P/L3

## SCOTLAND'S No 1

for home and personal computer repairs  
specially fast spectrum service!

- \* Same day for most faults
- \* 1 hour if delivered personally
- \* Free estimates
- \* Upgrades. Membranes and P.S.U.'s
- \* 3 mth. warranty on work done
- \* Open 6 days a week
- \* Also BBC/COMMODORE and PERIPHERALS

## MICRO-SERV

95 Deerdrykes View  
Westfield Industrial Estate  
Cumbernauld  
Tel: Cumbernauld 02367 37110  
Trade, schools and club discount given.

PL4A2

## FOR SALE

## YOUR PERSONAL CENTRONICS PRINTER



- DRAFT MATRIX PRINT
- NEAR LETTER QUALITY
- SUBSCRIPT SUPERSCRIP
- CONDENSE EMPHASIS
- 96 CHAR+48 EURO+16 MATHS
- GRAPHICS
- OPTIONAL TRACTOR

**ROCK HALL**  
TEL: (0533) 313531

128 Station Rd  
Cleveland  
Leazes  
LS3 6BN

**AMSTRAD 6128** G/S Modulator, Discs, Games, Joystick, Magazines £350. Also Spectrum games, magazines to clear. £150 or will split. Tel: 021-422 2846 after 5.30pm.

**ATARI 520ST** complete monochrome package as new. 3MB disc drive, usually £989, sell for £949 only. Telephone: Sunderland 362165 after 6pm.

**CBM64 GAMES.** Fighter Pilot, Pitstop, Match Point, Super Huey, 50 games cassette, all £4 each. Tel: 0506 411634.

**EIGHT GAMES** for 48k Spectrum, £5. Kartangon 2 Adventure, £2. Running Free, £2.50. Karl Crawford, 90 Westfield Avenue, Redcar, Cleveland TS10 1HG.

**TV PURSUIT** at last TV Pursuit 48k Spectrum. Over 12 questions. Send cheque, PO £5. E. Lewis, 36 Surrey Tower, Granney Growne, London SE20 8UW.

**BONZO MEDDLER** AMSTRAD CPC Series A FANTASTIC NEW UTILITY devoted to TAPE to DISC transfer. TRANSFERS ALL standard BASIC, BINARY, and even ASCII files. Can cope with some HEADERS and some FLASK/DAISY. FULL status display during transfer. "HARD" OFF" operation. Offers EXTENDED CATALOGUE. REMAINS to suit AMIGOS. AUTOMATICALLY RELOCATES BINARY as required. OUTDOGS also included! On tape, transfers itself to disc! OUTDOGS at price just... £5.00 inclusive (plus

by return of post, just... £5.00 inclusive (plus  
**NEMESIS (PCW)**  
10 Carrow Road, Ringland, Kettering.  
Northants NN14 4DW  
IDLE MEDDLER still available at £4.50. 22P/L6

## ACCESSORIES

## MEMOTECH COMPUTERS AND ACCESSORIES

|                              |         |
|------------------------------|---------|
| MICROWTEC V35 COLOUR MONITOR | £249.00 |
| MTX 512 COMPUTER             | £95.00  |
| DMX 80 PRINTER               | £175.00 |
| RS232                        | £35.00  |
| 1MB DISK DRIVE & INTERFACE   | £210.00 |
| NEWWORD ROM                  | £35.00  |
| PASCAL ROM                   | £35.00  |
| SPECULATOR ROM               | £35.00  |

All the above prices are fully inclusive. We stock the entire Memotech Range. Orders/Enquiries to:  
**UK HOME COMPUTERS**  
82 Churchward Ave Swindon,  
WILTS. SN2 1RH  
24-hr Phone Service 0793 096034

PL27

**SORD M5** Computers and software at giveaway prices. Stocks limited. SAE for lists or telephone 0279 417636. Playfair Projects, 133 Hookfield, Harlow, Essex CM18 6QL.

## DISCS

|                              |               |
|------------------------------|---------------|
| AMSOFT 3" CF2                | £33.00 PER 10 |
| AMSOFT 3" CF2D               | £59.50 PER 10 |
| AMSOFT 3" CF2                | £17.35 PER 5  |
| SONY 3 1/2" D3440            | £26.25 PER 10 |
| SONY 3 1/2" D4440            | £35.12 PER 10 |
| MAXEL 5 1/4" MD20            | £17.90 PER 10 |
| PACK & POST INC. ADD 15% VAT |               |

23P/L10

## RUGBY MICRO SPARES

30 OXFORD ST RUGBY  
CV21 3NF. (0788) 71643  
Callers welcome by App.



# There's a Dealer near you . . .

## BIRMINGHAM

D.G. MICROTEK ELECTRONICS  
190B DUDLEY ROAD  
WINSON GREEN  
BIRMINGHAM  
Tel: (021) 454 4697

PL544

## ESSEX

NOBLES  
14-17 EASTERN  
ESPLANADE  
SOUTHEND-ON-SEA,  
ESSEX  
Tel: (0702) 63377/8

PL508

CAREY ELECTRONICS  
FOR  
THE BBC MICROCOMPUTER  
SYSTEM  
COMPUTERS AND SOFTWARE,  
PERIPHERALS.  
7 CHURCH ROAD  
WALTON-ON-NAZE, ESSEX  
FRINTON-ON-SEA (02556) 6993  
9am-9pm

PL544A

H REYNOLDS  
79 ORSETT ROAD  
GRAYS, ESSEX  
Tel: (0375) 375948

PL901

MIKES COMPUTER STORE  
292 LONDON ROAD  
WESTCLIFF-ON-SEA  
ESSEX  
Tel: (0702) 332554

PL905



520 STM  
£399

## communication Plus+ INCORPORATING MICRO-MEND

5 HONEYWOOD ROAD  
(Off Cranes Farm Rd)  
BASILDON  
Tel: (0268) 21818

PL882A

## communication Plus+ INCORPORATING MICRO-MEND

c/o KEDDIES  
(second floor)  
HIGH STREET  
SOUTHEND  
Tel: (0702) 62426

PL882

## ESTUARY PERSONAL COMPUTERS

318 CHARTWELL NORTH  
VICTORIA CIRCUS SHOPPING CENTRE  
SOUTHEND ON SEA  
Tel: (0702) 614131

PL484

## GLASGOW

THE COMPUTER DEPOT  
205 BUCHANAN STREET  
GLASGOW G1 2JZ  
Tel: (041) 332 3944

PL705

## HEREFORDSHIRE

HONEYSETT COMPUTERS  
17 UNION STREET  
HEREFORD HR1 2BT  
Tel: (0432) 279404  
ASK ABOUT  
CLUNKER SALE

PL524

## HUMBERSIDE

THE COMPUTER CENTRE  
(HUMBERSIDE)  
26 ANLABY ROAD  
HULL  
NORTH HUMBERSIDE  
0482 26297

PL493

## KENT

ANIROG COMPUTERS  
29 West Hill  
Dartford  
Kent  
Tel: (0322) 91649

PL494

## dgh software centre

10 NORTH STREET,  
ASHFORD, KENT  
Tel: (0233) 32597

PL506

MICROWAY COMPUTERS  
39 HIGH STREET  
RAINHAM, KENT  
Tel: (0634) 376702

PL512

## MIDDLESEX

INNOVATIONS  
COMPUTER & VIDEO  
9 HARMONDSWORTH ROAD  
WEST DRAYTON  
MIDDLESEX UB7 9JS  
Tel: (0895) 420457

PL510

## LEEDS

MICROPOWER  
NORTHWOOD HOUSE  
NORTH STREET  
LEEDS LS7 2AA  
Tel: (0532) 458800

PL583

## LEICESTERSHIRE

DIMENSION COMPUTERS LTD  
27-29 HIGH STREET  
LEICESTER  
Tel: (0533) 57479

PL540

## LONDON

LOGIC SALES  
19 THE BROADWAY  
THE BOURNE, SOUTHGATE  
LONDON N14  
Tel: 01-882 4942

PL496

VIC ODDENS  
6 LONDON BRIDGE WALK  
LONDON SE1  
Tel: 01-403 1988

PL498

SOFTWARE STORE LTD  
35 LONDON ROAD  
LONDON SW17  
Tel: 01-685 1476

PL499

GAMES WORLD  
129 KING STREET  
HAMMERSMITH  
LONDON W6  
Tel: 01-741 4467

PL516

## LIVERPOOL

### BLUE CHIP

BLUE CHIP  
77 ALLERTON ROAD  
LIVERPOOL L18 2DA  
Tel: (051) 722 3037

PL486

## SUSSEX

GATWICK COMPUTERS  
62 THE BOULEVARD  
CRAWLEY, SUSSEX  
Tel: (0293) 26240/37842

PL512



## SUFFOLK

**FOR MSX, SPECTRUM,  
COMMODORE, AMSTRAD**



Sudbury Micro Systems  
Computer Retail & Consultancy

**84 NORTH STREET  
SUDBURY  
TEL: SUDBURY 311839**

PL901B

## STAFFORDSHIRE

**MICROTRONICS**  
27a MARKET STREET  
TAMWORTH, STAFFS  
Tel: (0827) 51480

PL811

**HOME SOFT COMPUTING**  
1st FLOOR  
81A BOLEBRIDGE ST  
TAMWORTH  
STAFFS  
(0827) 63549

PL81A

FAST reliable service of DATA-DUPLICATION for most computers. Comprehensive facilities include: emergency re-recording, blank discs/cassettes, blank or printed labels/inlays. **COMPETITIVE PRICE LIST** from:-



PL395

## COMPUTER PROGRAMS

REAL-TIME or (Slow) High SPEED professional Cassette Duplication and Blank, 1 to 1,000+. Computer printed cassette labels, BBC Disk copying 1 to 500+. Fast Security Delivery Service.  
See records - a division of FILTERBOND LTD.  
19 Sedlers Way, Hertford SG14 2DZ.  
0992 851188

PL397

## AMSTRAD PCW 8256 and PCW 8512

Dust covers monitor and keyboard. Highest quality, only £9.50 inc. p+p.

Send your cheque made payable to  
**Willows Secretarial Services,  
Greyhound House, 23 George  
Street, Richmond, Surrey TW9  
1JJ.**

22PL31

## PROFESSIONAL ELECTRONICS TECHNICIANS

Short re-training courses (3 weeks)

### VCR SERVICING

### MICROCOMPUTER SERVICING

(ONC/ONC/HNC also available in modules)

\* **MSC GRANT AID to EMPLOYERS/TRAINEEs** \*

Television/VCR/CCTV/MICROELECTRONICS

Information Technology/CAD/CAM/ATE

MICROPROCESSORS/Computers/CONTROL

**LONDON ELECTRONICS COLLEGE**

Dept MFC, 20 Penryns Road London SW5 8SU

Telephone: 01-373 8721 21PL2

## S. WALES

**MAPPLE MICRO ASSOCIATES**  
FREEPOST  
PO BOX 17  
CWMBRAN  
GWENT NP44 3YT

PL848

## YORKSHIRE

**MICRO BYTE SOFTWARE SHOP**  
38 COUNTY ARCADE  
LEEDS  
FULL RANGE OF TOP  
QUALITY SOFTWARE,  
PHONE FOR PRICES  
Tel: (0532) 450 529

PL813

**YORK COMPUTER CENTRE**  
7 STONEGATE ARCADE  
YORK  
Tel: (0904) 641862

PL818

**MICRO BYTE SOFTWARE SHOP**  
19A LOWER WARREN CENTRE  
WAKEFIELD  
Tel: (0924) 376656  
FULL RANGE OF  
TOP QUALITY SOFTWARE  
PHONE FOR PRICES

PL814

**FOR  
POWERFUL  
DEALER  
ADVERTISING  
CALL JON  
BEALES  
on 01-437 4343**

PL815

## WARWICKSHIRE

**FAST FORWARD COMPUTER STORE**  
29 SMITH STREET  
WARWICK  
Tel: (0926) 492004

PL845

## NORFOLK

**THETFORD MICROS  
SPECIALISTS -  
COMPUTER REPAIRS**  
21 GUILDHALL STREET  
THETFORD  
NORFOLK  
(0842) 61645

PL812A

**TELEX YOUR  
CLASSIFIED  
COPY TO:  
296275  
SUNRGY**

HAS

# COMPUTER SWAP

**QL Games!** - Zkull - BJ in 3D - BJ The Return - Match Point - £8 each - Flight Simulator - £11-40 for the lot. Write to John Franklin, Fleets Cottages, Wellan, Near malvern, Worcs WR13 6NA.

**SPECTRUM + £70.** Microvitic Monitor £160. Mannesman Tally Printer for Spectrum £160. All boxed, manuals, many other add-ons. 250 tapes. Send for lists. Turner, Little Barn, Arford, Headley, Hampshire GU35 6BS. 0428-713019.

**ELECTRON/BBC Pools Predictor.** With formfinder, Cover 80% accuracy! Perm-Planner-Plus etc. Send cheque/PO for £7 to A. O'Brien, 3 Garden Cottages, Glencott Estate, OBAN, Argyll, PA34 4QB. Cassettes sent by return post. (1st class).

**BETA + Disc Interface + 80 track double sided drive for 48K Spectrum £150 o.n.o.** Commodore MPS 801 printer (new) £70 o.n.o. Commodore MPS801 Printer (New) £70 o.n.o. Write to Derek Scott, 26D Harden Place, Hawick, Scotland TD9 7BY. Phone: (0450) 78696.

**AMSTRAD** tape to disk transfers. Most programs transferred. Send original cassette + disk + £150 for fast return to: M.J. Dyos, 84 Durham Court, Ellesmere Port, South Wirral L65 9ED.

**IBM PC** Disk upgrade. Also T/Stream and M/F cards. Can be installed in South of Britain if necessary. Good prices. Phone 0252 62275 evenings.

**ADVENTURE Maps/solutions** "Worm in Paradise" (12 pages) £1.20. "Seabase Delta" (4 pages) 50p. many more S.A.E. for list, please Mr J.R. Barnsley, 321 Merrivale Road, Stafford, Staffs ST17 9EB.

**AMSTRAD 464 Colour.** Lots of tape software £190 DDI disc drive £100. Skywave Interface £60. Interlink Modem £100 or the lot for £420 o.n.o. seeing is believing. Tel: 685 1310.

**SINCLAIR Spectrum + Interface I & II** Microdrive Joystick, Currah, NSpeech. Programmable Joystick Interface. Lots of Software Books sell for £160 o.n.o. Phone 0243 69 2482. Ask for Antony after 7pm weekdays.

**ADVENTURE Exchange Service.** Free membership. Exchange your completed adventures. S.A.E. for details. A.E.S. 78 Merton Road, Highfield, Wigan WN3 6AT.

**ATARI 800XL.** 1050 Disc Drive, 1010 Cassette Player, Touch Tablet, and Atari Basic Tutor Books and Cassettes. £250 o.n.o. or swap for Commodore 64 and 1541 Disc Drive. Phone (0903) 47009.

**ADVENTURE Probe.** Writing, solving or stuck? This is the magazine for you! Sample copy £1 or S.A.E. for details. Pat Winstanley 13 Hollington Way, Wigan WN3 6LS.

**WANTED** December 83 Popular Computing Weekly must contain article on 3-D Graphics. Also any other articles on 3-D graphics for the BBC. Private purchase. Phone Ian on 218088.

**LYNX Software** (inc. Lords of Time, other Level 9 Adventures). Books, magazines, cost over £100 - £50 o.n.o. Burglar lock machine! 021-360 7288.

**ATARI 800 400** the impossible disk back up system works on any disk. Fits into operating Rom module £30 complete with 4K extra RAM and full instructions 949 8894.

**QL** plus books, programs, blank cartridge, manual 7 month old. Excellent condition, little used. Will sell for £75 write to Aba217 11 Breeze Hill, Connah's Quay, Clwyd CH5 4NV.

**MEMOTECH** Speculator and 2 games swap for RS232 board or sell for £20. Phone: North Shields 2583320.

**ATARI** goods, direct connect modem Prestel, BBC etc £80. 410 Recorder £15. 1020 Printer Plotter £40. Cassette soft-

ware originals £2. Books, Mags. Write Ronnie 67 Church Rd, London NW4 4DU. 01-2034545.

**ATARI 520ST** disc drive (SF354). Boxed AS-New. £99. 01-729 2904.

**PSION** Organizer Pocket Computer offers around £50. Amstrad CPC464, green monitor + colour modulator + Programs including Dvcpac + joystick. £150 o.n.o. All still boxed, Phone M. J. Swanson, Pilsbury (0790) 52120.

**FOR** sale Commodore 1541, disk drive £90, Ferguson TV with RGB £100, Commodore Easy Script Spell file £40 each. All good as new. Ring 0277363991 after 7 pm.

**AMSTRAD 6128** (Green), CPM plus Dr Pascal (with 2 manuals), C Compiler, 3D-Chess, Oddjob, Bridge Player, 4 months old. With DMP2000 Printer £400, without DMP2000 Printer £400, without £260. Tel: 01-567 4351 (ask for Levant).

**AMSTRAD CPC464** Green Screen, disk drive, loads of tape and disk games (Elite, WDW2, get Dexter etc), may split, bargain at £250 o.n.o. 01-672 2509.



## DRAGON USER

To make the most of your Dragon you need **Dragon User** - the independent magazine for Dragon owners. To make sure that you receive a copy of Dragon User regularly subscribe direct to us. A year's subscription costs £14 for 12 issues (overseas rates available on application). Send a cheque or postal order made payable to Dragon User, and accompanied by your name and address, to Dragon User, Subscription Department, Oakfield House, Perrymount Road, Haywards Heath, Sussex RH16 3DH.

PL30



# New Releases

John Cook looks through this week's new arrivals

## AMSTRAD

**Program Office Mate Type Utility Micro Amstrad Price** £15.00 **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Office Master Type Utility Micro Amstrad Price** £25.00 (tape or disc) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Wild Bunch Type Utility Micro Amstrad Price** £1.99 **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program Spiky Harold Type Arcade Micro Amstrad Price** £1.99 **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program Graham Gooch's Test Cricket Type Arcade Micro Amstrad Price** £9.95 (tape) £14.95 (disc) **Supplier** Audio-genic, 12 Chiltern Enterprise Centre, Station Road, Theale, Berkshire RG7 4AA.

**Program Classic Invaders Type Arcade Micro Amstrad Price** £2.99 (tape) £9.95 (disc) **Supplier** Bubble Bus Software, 87 High Street, Tonbridge, Kent TN9 1RX.

**G**olly - *Classic Invaders*? It can't be? No? All the memories of a mispent youth come flooding back. Leaning up against the wooden cabinet of an Invaders



machine in some dark corner of an under-age pub, trying to make half a pint of weak lager shandy last all night, feeding

the machine with 10p's.

And now, Bubble Bus would have it, these glory days can be recreated with *Classic Invaders*, Amstrad style, released under its 'Mini-Bus' range. Or can they?

Loading the game shows the same basic scenario as ever - you control a laser base at the bottom of the screen, whose destiny is to move left and right, then zap the hordes of aliens that are slowly descending from the top of the screen, to invade the Earth. They are also constantly dropping bombs which you must skillfully avoid, only aided by the cover your three bunkers can give you, until they too, are blown to bits.

Kill them all... then there's another screenful, then another, then another...

Now don't take me wrong. *Classic Invaders* is OK. The Invaders are now brightly coloured - quite smart in fact - and the game plays well enough. But to my mind, they're not green enough, not loud enough, and you don't lose money every time you make a mistake.

But if you've had your head in a bucket for seven years, just bought a computer and want to know what started it all; this is it.

**Program Voodoo Rage Type Arcade Type Amstrad Price** £1.99 **Supplier** Antarctic, Arctic Computing, Main St, Brandesburton, Yorkshire YO25 8RL.

**Program Kane Type Adventure Micro Amstrad Price** £2.99 **Supplier** Mastertonic, 8-10 Paul St, London EC2.

**Program Rad Zone Type Arcade Micro Amstrad Price** £1.99 **Supplier** Mastertonic, 8-10 Paul St, London EC2.

**Program Turbo Esprit Type Arcade Micro Amstrad Price** £8.95 **Supplier** Durell, Castle Lodge, Castle Green, Taunton, Somerset TA1 4AB.

## ATARI

**Program King's Quest Type Adventure Micro Atari ST Price** £29.95 **Supplier** Mirrorsoft, Purnell Book Centre, Paulton, Bristol BS18 5LQ.

Pick of the week

**Program Molecule Man Type Arcade Micro Spectrum Price** £1.99 **Supplier** Mastertronic, 8-10 Paul St, London EC2.

**M**astertronic is just about to enter the big time. Three titles in the CES Hall of Fame this season indicates that the American side of things is just about to take off, and there are some cracking titles in the pipeline for release soon.

*Flash Gordon* is one to look out for in August - *Ninja* is promised to be the martial arts game to beat all martial arts games. And next month (you read it first here folks!) an Amstrad version of the arcade hit of '86 *Gauntlet*... to be named *Storm*. These are the guys that all the other budget software houses have to beat... and you can see why with something like *Molecule Man*.

This one has you controlling something that looks a bit like the bubble in all the Corona adverts, around 256 *Knight Lore* type screens. The single colour display and varied graphics are both done in a workman-like fashion.

The scam is that you are stuck in this maze/planet!

## Molecule Man

whatever, deadly radiation all about you, and must collect 16 electric circuits in order to enable you to teleport off.

To aid you, you need pills (which ward off the effects of the rays, for a time) and bombs (no explanation needed - what would you do with a bomb?), both of which can be obtained from dispensers dotted around the place - if you have a coin... which in turn are found, etc, etc.

This makes it an acceptable enough race-against-time arcade adventure - and at £1.99 would have more than enough to recommend it to lovers of this genre.

The surprise comes on side B of the tape - a maze designer/editor that allows you to alter the existing maze or create your own, edit each and every screen to make it harder... or maybe easier (ha, ha)... you name it, you can alter it, save it to tape and then play your own version of the game. Or challenge a friend to play your version. Or invert a completely new game around the existing character and objects. This must increase the playing life of a game at least five-fold.

**Program The Black Cauldron Type Adventure Micro Atari ST Price** £29.95 **Supplier** Mirrorsoft, Purnell Book Centre, Paulton, Bristol BS18 5LQ.

## BBC

**Program Office Mate Type Utility Micro BBC B Price** £12.00 (tape or disc) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

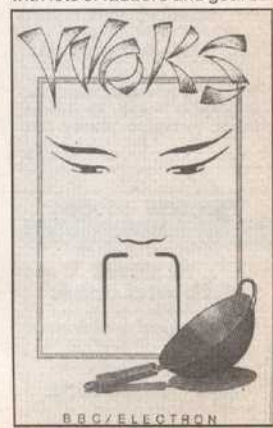
**Program Office Master Type Utility Micro BBC B Price** £25.00 (tape or disc) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8.

**Program BBC Money Management Type Utility Micro BBC B Price** £12.95 (disc only) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8.

**Program Woks! Type Arcade Micro BBC/Electron Price** £1.99 **Supplier** Arctic Comput-

ing, Main St, Brandesburton, Yorkshire.

**H**ow's this for a plot? The Emperor has confiscated everyone's woks - because he thinks they are eating too much fatty food - and placed them in strongrooms with lots of ladders and guards.





You as the people's champion must rescue them. Does this win the prize for the thinnest and silliest disguise for a collect and dodge game or what?

Still, the graphics are chunky BBC, but colourful, and the gameplay is diverting enough for a short while ('Collect and dodge' with a touch of *Amidar*, I should have said).

Unpretentious, undemanding and cheap. You could do worse.

**Program BBC Life and Business Organiser Type Utility Micro** BBC B Price £19.95 (disc or Rom) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Statutory Sick Pay Package Type Utility Micro** BBC B Price £39.95 **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon, EX8 4RS.

**Program The Great Wall Type Arcade Micro** BBC B Price £1.99 **Supplier** Antarctic, Arctic Computing, Main St, Brandesburton, Yorkshire YO25 8RL.

## C16/Plus 4

**Program Runner Type Arcade Micro** C16/Plus4 Price £1.99 **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program Shark Type Arcade Micro** C16/Plus4 Price £1.99 **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program Baby Berks Type Arcade Micro** C16/Plus4 Price £1.99 **Supplier** Alpha Omega, CRL Group, 9 Kings Yard, Carpenters Rd, London E15.

**Program The Exploits of Fingers Malone Type Arcade Micro** C16/Plus4 Price £1.99 **Supplier** Mastertronic, 8-10 Paul St, London EC2.

**Program Street Olympics Type Arcade Micro** C16/Plus4 Price £1.99 **Supplier** Mastertronic, 8-10 Paul St, London EC2.

## COMMODORE 64

**Program Nexus Type Arcade Adventure Micro** Commodore 64 Price £9.95 (tape) £12.95 (disc) **Supplier** Nexus Productions, DSB House, 30 High St,

Beckenham, Kent BR3 1AY.

**Program Return of the Space Warrior Type Arcade Micro** Commodore 64 Price £1.99 **Supplier** Alpha Omega, CRL House, 9 Kings Yard, Carpenters Rd, London E15.

It must be the time of the year, but there's a lot of so-called 'budget' titles around right now. My theory is that this is supposed to lure school kids back to their computer during the summer - when they should, naturally, be out annoying the neighbours. Still, this is an offering from CRL's budget label, Alpha Omega, called *Return of the Space Warrior*. "It had to be a nightmare," says the cassette inlay; and true enough, it is - namely a fairly lame version of *Joust*.

*Joust*, you might remember, was a highly original game in its time. Played on a screen



with downwards gravity (and strategically place platforms for you to rest on) you played a knight aboard a gryphon-like beast, armed with a lance. You pressed 'fire' to flap your beast's wings (and therefore gain height) which was of great importance in the game, as if you collided with an enemy, you would die if your lance was lower than his.

Back at *Space Warrior*, gone are the Gryphons (in come ovulasphears - blobs to you) and the lances and the excellent two player option in which you could play simultaneously on screen with a friend. What you are left with is a game which admittedly can get quite fast - but is totally lacking in visual appeal and atmosphere. Mediocre budget fare I'm afraid.

**Program Bump Set Spike Type Arcade Micro** Commodore 64

Price £1.99 **Supplier** Mastertronic, 8-10 Paul St, London EC2.

## SPECTRUM

**Program Spike Type Arcade Micro** Spectrum Price £1.99 **Supplier** Firebird Software, Wellington House, Upper St Martins Lane, London WC2.

**Program Helicopter Type Arcade Micro** Spectrum Price £1.99 **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program Wild Bunch Type Arcade Micro** Spectrum Price £1.99 **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

**Program The Boggit Type Adventure Micro** Spectrum Price £7.95 **Supplier** CRL Group, 9 Kings Yard, Carpenters Rd, London E15.

**Program Dragon of Notcare Type Adventure Micro** Spectrum Price £2.50 **Supplier** David Edgar, 1 High Parksail, Erskine, Scotland PA5 7HY.

**Program The Master Type Arcade Micro** Spectrum Price £1.99 **Supplier** Antarctic, Arctic Computing, Main St, Brandesburton, Yorkshire YO25 8RL.

**Program Office Master Type Utility Micro** Spectrum Price £15.00 (tape) £17.50 (microdrive) **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Conquest Type Arcade Micro** Spectrum Price £2.99 **Supplier** Mastertronic, 8-10 Paul St, London EC2.

**Program Ninja Master Type Arcade Micro** Spectrum Price £1.99 **Supplier** Firebird, Wellington House, Upper St Martins Lane, London WC2.

Now you'd expect a program entitled *Ninja Warrior* to be all gore, broken bones and white pyjama tops, wouldn't you?

Well, no... you'd be wrong - for a start we all know that the sneaky Ninja, 'a breed of warriors feared by all...' only ever wear black, so as to sneak up on unsuspecting passers-by and generally do the dirty on them in the depths of the night. And also, in this martial arts

epic, the only blood ever spilt is your own.

It is the annual Ninja games - and this is your big chance to impress the elders. Yup, Bruce Lee finally meets Daley



Thompson. There are four tests in all. The 'punch the approaching arrows' test. The 'chopping the log in half' test (this is a hammer on two keys job). The 'deflect the stars' test (high, middle or low). Finally a 'zap the cans with the blowpipe' test. Like all the other sports simulations, you are given three chances to attain a qualifying score to pass on to the next test.

The graphics (mostly black on yellow) are not really that good, the gameplay isn't that good and the sound consists of two sampled screams which you will soon get tired of.

Put it this way; despite all the chopping and parrying, this is not another *Thrust*.

**Program Pentagon Type Arcade Micro** Spectrum Price £9.95 **Supplier** US Gold, Unit 10, The Parkway Industrial Centre, Heneage St, Birmingham B7.

## QL

**Program Life and Business Organiser Type Utility Micro** QL Price £19.95 **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Executive Adventure Type Adventure Micro** QL Price £12.95 **Supplier** Gemini, Gemini House, Concorde Rd, Exmouth, Devon EX8 4RS.

**Program Dragonhold Type Arcade Micro** QL Price £19.95 **Supplier** Robbin Computer System, 11 Bannerdale Rd, Sheffield, S7 2DJ.



## Top Twenty

- |        |   |                 |
|--------|---|-----------------|
| 1 (-)  | World Cup Carnival (Spectrum, Amstrad, C16) | US Gold         |
| 2 (3)  | Kik Start (Spectrum, C64, Atari)            | Mastertronic    |
| 3 (5)  | Batman (Spectrum, Amstrad)                  | Firebird        |
| 4 (2)  | Formula One Simulator (Various)             | Mastertronic    |
| 5 (1)  | Thrust (C64)                                | Firebird        |
| 6 (7)  | International Karate (Spectrum, C64)        | System 3        |
| 7 (-)  | Cauldron 2 (C64)                            | Palace          |
| 8 (4)  | Commando (Various)                          | Elite           |
| 9 (6)  | Spindizzy (Spectrum, C64, Amstrad)          | Electric Dreams |
| 10 (8) | Rock 'N' Wrestle (Sp, C64, Am)              | Melbourne House |



Biggles flies in at 16

- |         |                                    |                |
|---------|------------------------------------|----------------|
| 11 (15) | Saboteur (Spectrum, C64, Amstrad)  | Durell         |
| 12 (9)  | Bomb Jack (Spectrum, C64, Amstrad) | Elite          |
| 13 (-)  | Knight Tyme (Spectrum)             | Mastertronic   |
| 14 (16) | Last V8 (C64, Amstrad, Atari)      | Mastertronic   |
| 15 (14) | Vegas Jackpot (Various)            | Mastertronic   |
| 16 (-)  | Biggles (C64)                      | Mirrorsoft     |
| 17 (-)  | One Man And His Droid (Various)    | Mastertronic   |
| 18 (-)  | Ninja Master (Spectrum)            | Firebird       |
| 19 (-)  | Green Beret (Spectrum, C64)        | Imagine        |
| 20 (-)  | Heavy On The Magik (Spectrum)      | Gargoyle Games |



Straight in at number one

## NEXT WEEK

### ● CES report

The Summer Consumer Electronic Show in Chicago is the world's biggest exhibi-



tion for the home computer industry. We'll have all the news and brand new products from the show.

### ● Language series

Next week we focus on Pascal, the highly structured language which is rapidly becoming an industry standard.

### ● Soundcheck

Don't miss the next in Mark Jenkins' new regular music column.

### ● Plus ...

Win a copy of the forthcoming release from Nexus in our Arcade Action competition.

## Top Tens

### Amstrad

- |         |                              |
|---------|------------------------------|
| 1 (-)   | Batman (Ocean)               |
| 2 (2)   | Winter Games (Epyx/US Gold)  |
| 3 (3)   | Commando (Elite)             |
| 4 (1)   | Get Dexter (PSS)             |
| 5 (-)   | World Cup Carnival (US Gold) |
| 6 (-)   | Bounder (Gremlin)            |
| 7 (4)   | Elite (Firebird)             |
| 8 (4)   | Last V8 (Mastertronic)       |
| 9 (-)   | One Simulator (Mastertronic) |
| 10 (10) | Into Oblivion (Mastertronic) |



Thrust - knocked off the top

All figures compiled by Gallup/Microscope

### Commodore 64

- |         |                               |
|---------|-------------------------------|
| 1 (-)   | World Cup Carnival (US Gold)  |
| 2 (1)   | Thrust (Firebird)             |
| 3 (2)   | Int Karale (System 3)         |
| 4 (-)   | Cauldron 2 (Palace)           |
| 5 (6)   | Biggles (Mirrorsoft)          |
| 6 (9)   | Saboteur (Durell)             |
| 7 (3)   | Spindizzy (Electric Dreams)   |
| 8 (-)   | Bump Set Spike (Mastertronic) |
| 9 (7)   | One Simulator (Mastertronic)  |
| 10 (10) | Golf (Ariolasoft)             |

### Atari

- |         |                               |
|---------|-------------------------------|
| 1 (-)   | Kik Start (Mastertronic)      |
| 2 (1)   | Vegas Jackpot (Mastertronic)  |
| 3 (3)   | Last V8 (Mastertronic)        |
| 4 (8)   | One Man & his Droid (Mironic) |
| 5 (4)   | New York City (Americana)     |
| 6 (9)   | Scotter (Americana)           |
| 7 (7)   | Shamus (Americana)            |
| 8 (6)   | Fighter Pilot (Digital Int)   |
| 9 (2)   | Action Biker (Mastertronic)   |
| 10 (10) | Arcade Classics (Datsoft)     |

### BBC

- |        |                                |
|--------|--------------------------------|
| 1 (1)  | Commando (Elite)               |
| 2 (-)  | Bruce Lee (US Gold)            |
| 3 (3)  | Tennis (Bugbyte)               |
| 4 (8)  | Jack Attack (Bugbyte)          |
| 5 (-)  | Jet Set Willy (Ware Projects)  |
| 6 (2)  | Winter Olympics (Tynesoft)     |
| 7 (-)  | Comp. Hits 10 (Beau Jolly)     |
| 8 (-)  | Galactic Patrol (Mastertronic) |
| 9 (10) | Combat Lynx (Durell)           |
| 10 (-) | Death Star (Superior)          |

### Spectrum

- |        |                               |
|--------|-------------------------------|
| 1 (-)  | World Cup Carnival (US Gold)  |
| 2 (1)  | Batman (Ocean)                |
| 3 (-)  | Knight Tyme (Mastertronic)    |
| 4 (3)  | Rock 'N' Wrestle (Mel House)  |
| 5 (4)  | Green Beret (Imagine)         |
| 6 (-)  | Ninja Master (Firebird)       |
| 7 (7)  | Heavy On The Magik (Gargoyle) |
| 8 (9)  | Bomb Jack (Elite)             |
| 9 (6)  | Fireman (Mastertronic)        |
| 10 (-) | Quazatron (Hewson)            |

## The Hackers





# EQUINOX

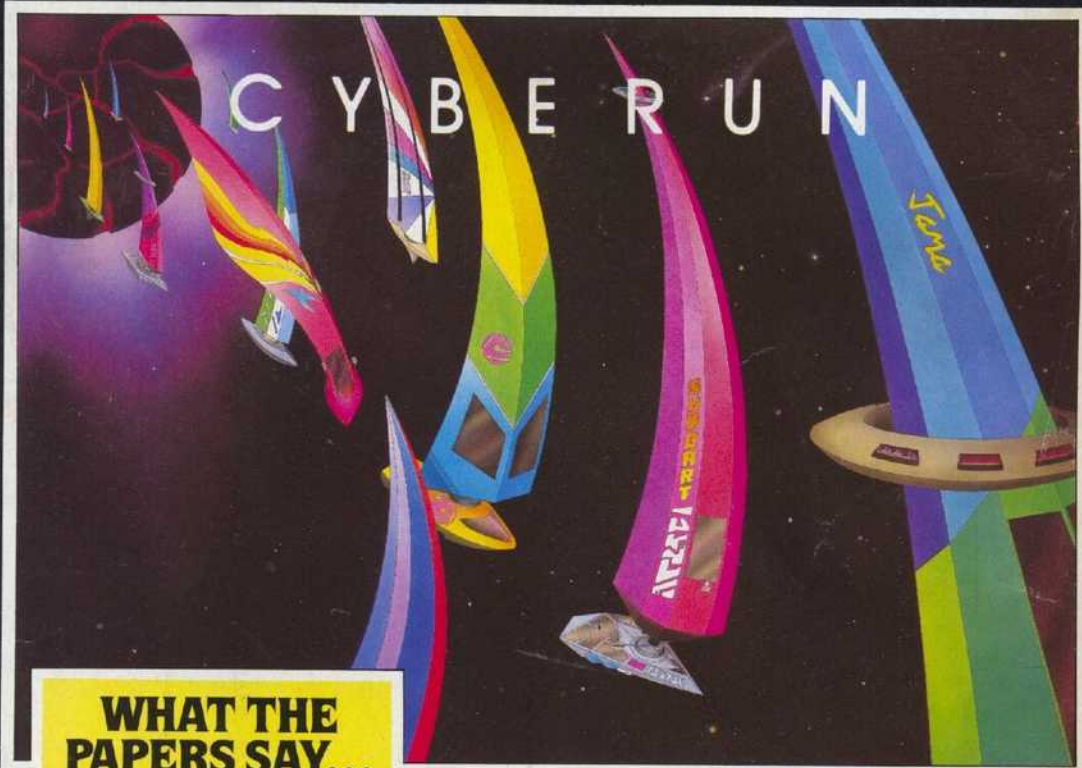


Spectrum/Amstrad £9.95

MIKRO-GEN  
Unit 15 The Western Centre  
Western Road  
Bracknell  
Berks.

**ULTIMATE**  
PLAY THE GAME

# Back with a Vengeance!



## WHAT THE PAPERS SAY...

"Once you start playing the game it becomes increasingly clear that Ultimate have produced yet another excellent game. The playing area is huge and there are some excellent graphical effects like the stars which are beautifully parallaxed." "Playability wise Cyberun is an excellent game."

"The inlay card doesn't give much away, so it is a challenge just to find out what all the various goodies are for."

"This is a classic shoot 'em up which I'm sure all fans of Lunar Jetman will enjoy."

CRASH May 1986

PENTAGRAM and CYBERUN are available for the Spectrum 48k and Amstrad from selected branches of W.H. Smith, Boots, John Menzies, Woolworths and all good software stores. They are also available from Ultimate Play the Game, The Green, Ashby-de-la-Zouch, Leicestershire LE6 5JU. (Postage and packing included.)

**£9.95** including VAT



# PENTAGRAM

